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*Reader, whoc'er thou art that this doth buy,
And art resolv'd Ingenious Arts to try,
Here thou wilt find a Magazine of Wit,
The like (I'm sure) was never printed yet.*

ART'S Master-piece :

O R,

A Companion for the Ingenious,
of either Sex. 39.694

In TWO PARTS.

I. The Art of Limning and Painting in Oil, &c. in all particulars, *viz.* Drawing and Painting Faces, Bodies, Garments, Landskips; Preparing and laying on Colours; colouring Metzotinto Prints; gilding on Wood, Metals, or Leather. The newest Experiments in Japanning, to imitate the Indian way, plain and in Speckles, Rockwork, Figures, &c. Receipts for making the several Varnishes, Colours, &c. To make Artificial Tortoiseshell. To dye or stain Ivory, Horn, Bone, Bristles, Feathers, and sundry sorts of Wood for Cabinets. The Mystery of dying Silks, Stuffs, Woollen and Linnen Cloth. To take Spots, Stains, Pitch, Tar, and Ironmould *Out* of Silks, Stuffs, Linnen or Woollen, and recover faded Silks! The Art of Perfuming and Beautifying. Divers Receipts in Physick and Surgery. To make London Powder-Ink, other Inks, and the shining Japan-Ink: With many other useful Things.

II. The Art of making Glass of Crystal of all sorts and colours, and to prepare the Materials. To make Glass of Lead of many beautiful Colours. To make Enamel of divers colours for Gold, Silver, or other Metals. To make Chalcedony like Jasper or other lucid Stones, and prepare Materials for the Work. To make Artificial Precious Stones, equal in Beauty to the true; and to colour Globes of Glass on the inside. The Art of Painting Glass in Oil, and anealing and burning on the Colour. Instructions to cast Figures in Wax, Plaister, purest Metals, &c. Leaves, Flowers, Medals; and other Matters worthy of Note.

To which are added,

Many Curiosities and rare Secrets, known to few, but very profitable and pleasant.

The Fifth Edition, with Additions by C. K.

London, Printed for G. Conyers at the Ring, and
J. & B. Sprint at the Bell in Little Britain.



THE
EPISTLE
TO THE
READER.

Kind Reader,

I Think I need make no long Apology for this Book, since the Title is sufficient to recommend it to the Perusal of the Ingenious, tho' it contains but hints of what in larger Variety of curious Things are more Copiously inserted for the Accommodation of Young Gentlemen, Gentlemen, and others; done with that Care and Exactness, in all the many particulars, that (without Vain-Glory) I may presume to say, that this, nor former Ages have not produced of these kinds any thing so curious and compact.

It carries with it all along, as link'd in a Chain, Pleasure and Profit, and cannot

To the READER.

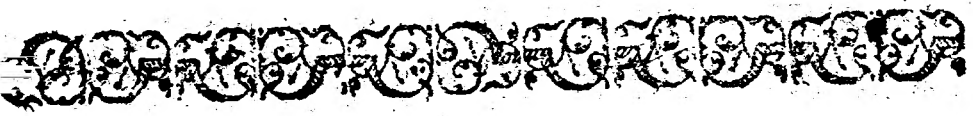
but be grateful to the Fancies, especially o the Younger sort, who putting in Practic what best suits their Minds, may muc please others, and accomplish themselves.

As for Limning or Painting, it has al ways been in high Esteem with the greatej and most honourable Persons in the World and is an innocent and diverting Recrea tion. Japanning, I confess, is not so An cient, especially in these Parts of the Globe therefore to be esteem'd as (indeed it is the more rare and considerable; as for th rest (too tedious to enumerate in a shor Epistle, though some of them have bee long in Use) Time and Industry have bet ter improv'd them to Advnatage, such a are Industrious to employ their Talents fo the Good of themselves and others. And J the Whole Work not comprehending man Sheets, I shall omit what more I justl might say, and submitting to the Cenfur of the Candid and Ingennous Reader, tak leave to subscribe my self,

Your Most Humble

Servant,

C. K.



T H E
 C U R I O U S A R T
 O F
 D R A W I N G,
 A N D
 P r e p a r i n g f o r L i m n i n g a n d
 P a i n t i n g i n O I L, &c.

The Introduction to the Practice, in some Things necessary to be provided for the proceeding in this Art.

TH E curious Art of Limning or Painting in Oil, has in all Ages been wonderfully admir'd and approv'd, as the Master-piece of other Arts and Sciences, wherein Art so exactly imitates Nature, that Motion only seems to be wanting; and many such rare Pieces have been drawn, that they have at the first blush deceiv'd the Eyes of the Curious, who have taken 'em for real living Beings; and tho' the Eye and Hand are mainly requir'd herein, the one to direct, and the other to operate, yet the Mind or Imagination must furnish out a
 great

great part of the Curiosity, having Idea's or the true Shape of Things always in a Readiness.

This cannot be done hastily, but must be done by a steady Practice and curious Observation; the first thing in this Undertaking is to furnish your self with suitable Materials, and amongst others *French Chalk* red and white, that it may be cut into curious taper Pencils, to draw the out-Strokes of any Figure you design, Sallow-wood so burnt that you may do the like by it, and if these Strokes hit not at first to due Proportion, they may be rubb'd out with the Feather of a Mallard's Wing, and so till you find them right, then go over your Stokes with a strong well pointed Pencil, either of red or black Lead: To make the Impression more even and regular, it will be proper to have Pens made of Raven or Crow Quills to finish the finer strokes, also a Rule and Compass with 3 Feet, to take in and out at the Points as you have occasion, the one of white or red Chalk, the other of black Lead, and a third of any other Pastil, and these in most Drawings are proper to mark out equal Distances after the drawing of the out-Strokes. There are other Things required, which in their proper place I shall speak of.

Being thus far entred, come a litte nearer to the Practice, and make your Entrance on it with plain Geometrical Figures, such as are the Circle, Square, Oval, Cone, Triangle, Cylinder, which at first use your self to mark out with your Rule and Compass, till you can readily do it with your Hand, and these will much assist you in the beginning of this curious Undertaking: the Circle well made, will direct you in orbicular Forms, as the Globe of the Earth, Spherical World, Moon, Sun, and the like,

is very proper in confining the Picture you are to copy; the Oval gives you Directions for the Mouth and Face, the Foot of a Wine-Glass, the Mouth of a Well, and the like; The Cone assists in Drawing Columns, Spirits, tops of Towers, Steeples, &c. The Triangle is of admirable use in making the half Face; the Cylinder gives you Assistance in drawing Columns, Pillars, Pilasters, and other things belonging to Architecture; the Polygon may be also used for Ground Plats, Fortifications, &c. and Angles and Arches in Prospective.

These things premised, try to Draw several sorts of Fruits and Flowers, as Grapes, Cherries, Peaches, Apples, Apricocks, Tulips, Pinks, &c. also Insects, Trees, Branches, and the like, and from these proceed to practice on Birds, Beasts, &c. consider well their proportion, colour, shewness, swiftness, fierceness, and many other things natural to them: and the better at first, till your Mind can well frame such Ideas, it will be proper to have good Drawings to imitate, and so go on by degrees, and other things, as Fish, Melons, Roots, Oranges, &c. and by no means mistake their suitable lively Colours, nor proper Form, and then you may venture on humane Faces and Bodies, wherein lies the Excellency of this Art.

of Drawing Faces, &c

When you come to Draw a Face, you must well weigh and consider in what posture it must be done, whether sideways, upward, forward, or downward, touching lightly the Features, where the Nose, Eyes, Mouth and Chin ought to stand, then go more perfectly over them,

for the Circles, Squares, and Triangles used in this matter, may sufficiently guide you where the Nose, Eyes, Mouth and Chin should stand; but in taking the Features, observe with a stedfast Eye the principal Muscles in the Face, which in persons of years appear very much, and there is usually to be observed a threefold proportion in a Face, as in the first place, from the top of the Forehead to the Eye-brows, in the second place, from thence to the bottom of the Nose, and lastly, from thence to the bottom of the Chin, observing in this case a due proportion in the length of the Forehead and Nose.

In a full Face, the distance between the Eye-brows, consists of the length of one Eye, but where there is a side, or three quarters Face, the distance must be lessened answerable to the proportion, the Nostrils must be placed directly against the nether corner of the Eyes, and if the Face you draw be Plump, or Fat, the Cheeks must swell; but consider, in a Lean Face, the Jaw-bones stick out, and the Cheeks fall somewhat in.

In a smiling Countenance, the Corners of the Mouth turn somewhat upwards, and in a sour frowning Countenance, the Forehead is bending, and Wrinkles appear on the upper part of the Nose.

In Drawing a fore-right Face, you must make a perfect Oval, divided by two Lines into three equal proportions; in the first part place the Eyes, in the second the Nostrils, and in the third the Mouth, keeping the Eyes an equal distance from each other.

In Drawing an upright Head, you must make it in equal divisions, with three Lines every way, either

either upwards, downwards, higher or lower, divided as the former.

To Draw the shortned or inclining Face, observe how the Lines agree, and so in their proper places you may Draw the Mouth and Nose, and the rest of the parts after you have brought your hand a little into practice; and note, whatsoever proportion the face bears, your out-strokes must be formed accordingly.

As for the Nose, you must among other things particularry observe the roundness, hollowness, and Indentings of the Nostrils.

As for the Hands, their Postures are various, but a true measure must be observed in it, according to the proportion you draw, as likewise the Arms, as far as they appear bare, then proceed to Draw the Feet with measure and without, but for these it will be requisite to get Drawings to practice on at first, then practice Drawing Feet and Legs conjunct or separate, and proceeding from the Members, draw the other parts of the body, and practice first on a Child, wherein there is more ease, because they are of a Fatter and Plumper Face and Body, the Sinews, Lines and Muscles, not appearing as in Men and Women.

In Drawing, begin at the Head, and so proceed by degrees to the Feet, running it lightly over at the first, and as you see occasion, encrease the fulness, let the parallel Joints and Sinews be equally proportioned, as also the Muscles, and their Attendants, and exactly opposite, and the Motions of the Body be answerable to each other, and the Limbs a true Symetry, one not being larger than the other, nor longer where Nature requires it not.

In Shadowing, observe to cast them ever

one way, as in the Figure of a Woman, if you begin the Shadow at the left Cheek, you must continue the like on the left side the Neck, Body, and all other parts, unless the Light side of it requires to be dark, by reason some other Body standing between the Light and it, as put the case three Men stand together, the middle Figure must be darkend by the foremost, unless the Light by facing it comes between them.

Observe, that all Shadows, the further off they are, grow fainter, and circular Bodies must have a circular Shadow, according to the Light that makes it.

In Drawing a Figure standing, Draw that Leg the Body stands firm upon, strait and steady, or else the Figure will seem to decline, as if it were falling.

As in naked Figures, the Out-Lines are required to be drawn first, so do it in Drapery or Clothing, leaving Spaces within for your greater or lesser Folds, and break them into lesser that may be contained within them, and the closer the Garment fits to the Body, the smaller and narrower must be the Folds, and in Shadowing the Innermost, it must be the harder, and the outermost the softer; continue the great Folds, but as for the lesser, break them off where occasion requires it; and the finer the Drapery is, the finer and sharper must the Folds be, and the Shadow the stronger and finer to the Eye, always observing, that the Garment that fits close, as the Body Coat of a Man or Breasts of a Woman, and the like, require no Folding, but rather with a sweet Shadow represent that part of the Body, that the Garment appears to cover, as Womens Breasts, with a sweet round Shadow, and the like.

Of Colours useful in Limning or Painting, and other matters.

The next thing to be considered, the Cloth primed, and the Drawing put on, is the preparing your Colours, which in Oil Painting must be with Linseed Oil, unless for Linen, and then Walnut is a great deal better, for it will not turn yellow as the other in time will, when mixed with curious white.

You must grind your Colours on a Stone with a Muller, till they are as fine as Butter, &c.

The Colours proper to be used in Limning are,

The Blacks; Sea-cole black, Ivory black, Lamp black, and Earth of Collen; the White, White-Lead; the Green, Terravet, Verditer, and Verdigrease; the Yellow, Spruce Oaker, Pink or Piemont, and Masticot; the Blues, Smalt, Biss, Indico, and Ultramarine; the Reds, Red-Lead, Vermillion, Lake, Indian-red, and Ornatio; the Colours indifferent are Umber, Spanish brown, burnt Spruce.

These are the chief to be laid in Oil, but Ivory, Spruce-Oaker and Umber must be burnt before they are ground; and as for Masticot, Ultramarine Masticot, Vermillion, Smalt, and Orpiment, you may temper them on your Pallat without grinding, though grinding is better, because it mixes them the better with the Oil, and makes them dilate and spread more easily: And what of these are to be burnt, perform it in a Crucible, taking care they be not overburnt, to lose their Tincture.

Take care in the next place to get good Pencils of all sizes, proportionable to your Work, a Pallat or Board to lay Colours on whilst you are

are using them, an Easle to place your Cloth upon or against, and a straining Frame, to which it must be nail'd, a Moll-stick or Stay, made of Brasil, or some ponderous Wood, not subject to bend, about a yard long, at one end tie a Ball of ravell'd Cotton, with a Leather over it, so that with your left hand holding it against the Work, you may support your right Arm with it, whilst you are Working.

Of Mixing or Tempering of Colours.

To make a Violet-colour, take Indico, White Lead and Lake, mix them well, and the more or less quantity of each will make it deeper or lighter.

A Lead-colour make of White and Indico, well mix'd and temper'd together.

For a Scarlet-colour, take Lake, Red-Lead, and a small quantity of Vermillion.

For a Flame-colour, take Red-Lead and Masticot heighten'd with White.

For a Light-green, take Pink and Smalt, and as you see occasion, lighten it with White.

For a Purple-colour, take Spanish-brown, Indico, and White, well temper'd together.

For a Bay-colour, mix Spanish-Brown and White.

For a Murrey-colour, mix Lake and White; and so by often tempering Colours, and Practice, you may find out the rest.

Of the first Operation or Sitting.

Having thus far proceeded, it will be time to begin your Work, and having laid your Ground for the general Complexion, and drawn
the

the Out-Lines, which you must do with Lake and White mingled, Drawing very faintly, that if there be any Fault, it may be rubb'd out and amended; the proportion of the Face drawn, add to the former Colour a small proportion of Red-Lead, tempering it faintly to the Colour of the Cheeks and Lips, the tip of the Chin and Ears, about the Eyes and Roots of the Hair, placing red Shadows, and the Shadows must not be put in with the flat of the Pencil, but with small touches, after the manner of hatching; and in this wise go over the Face, and cover the Ground-work with these and the like Shadows; but in the dead Colours your Curiosity need not be great, only strive as near as you can to imitate Nature, for the roughness of the Colours may be mended at the second Operation.

Having duly plac'd and proportion'd your red Shadows, proceed to put your Faint-blue Shadows about the Corners of the Eyes and Balls, &c. and the Greyish-blue under the Eyes, and about the Temples, working them sweetly and faintly over, by degrees, beginning the Shadow as the Light falls, as likewise the hard Shadows on the dark side of the Face, under the Eye-brows, Chin, Nose and Neck, with strong touches on those places, so pass to the light side of the Face, and bring all your Work together to an equal roundness; yet at this time give not perfection to any particular part, but well view the Work, and consider how near you come to the Life, not only in likeness, but posture, colouring, &c.

Having now wrought the faint Shadows into the red Shadows, you may take a touch at the Hair, disposing it in such Curls, Folds, &c. as
best

best contribute to Grace and Ornament, only drawing it with Colours suitable to the Life, and deepen it somewhat more strongly in the deepest shadow'd places, and so desist from your first Operation.

Of the second Sitting or Operation.

The Party to be Drawn in this second Sitting, must take the place and posture as before, and now you must take a more curious Survey of the Lines and Features, and as you drew them over roughly before, now is the proper time to sweeten them with the same Colours, by Working and Drawing them one into another, so that no rough edge or lump of Colour may appear, and you must do this with a Pencil sharper than the former, to render the Shadow smooth and soft.

This done, proceed to the backside of your Picture, and if there be a Curtain required, and it be supposed of blue Sattin, then temper Bice with your Oil, and draw the Out-lines of the Curtain, as also your Picture, and lay it over very thin and airy with a large Pencil, that it may be the whole Ground intended to be done with Blue, and then lay it over again with a substantial Body, with the same Colour, doing it swiftly that no part of the Colour may dry before it be all finished. And in the same manner you may lay the backside with any Colour.

This done, lay your Linnen of a fair white, and your Drapery flat, with the Colour you intend it; then view the Face again well, noting what Shadows are too light or too deep, and labour to reduce the several Shadows to their perfection,

perfection, then draw the Lines out of the Eye-lids, and shadow the entrance into the Ears, the deepness of the Eyebrows, and all the most material Marks and Notes in the Face, do this with a Curious sharp Pencil, then lighten the Hair, deepening it as it appears in the Life casting over the Ground some loose Hairs, which will not only make it look airy, but seem as if the Picture stood a Distance from the Curtain.

In shadowing the Lines, which must be done curiously, use Black, White, and a little Blue, deepen the Black with Ivory-Black, and put to it a little Quantity of Indico or Lake, and so the second Operation is finished.

The third Sitting or Operation.

Herein where you find any defect, or Judge it reasonable, you must give strong touches, taking curious heed for the rounding of the Face, which will now be better accomplished than before, observing diligently what yet may conduce to similitude, as Moles, Scars, Casts with the Eyes, drawing of the Mouth, and the like.

For Garments or Ornaments, the Ground for Blue being laid with Bice, the deepening must be Indico, and a little Lake, the lightening white, very fine, faint and fair, and for the greater Ornament, the Light may be mixed with Silver or Gold, but of Drapery more particularly in Metzo-tinto Painting; for Pearl Colour the Ground must be White and Indico, and the Shadow Pink and Black; if the Body requires to be in Armour, let Leaf Silver be the Ground, and when it is well dried and burnished, work the Shadow with Silver, Umber and Indico,

Indico, and the Shadow on the Silver as the Life directs.

For Gold Armour, lay Shell-Gold for the Ground, or Liquid Gold, and shadow it with Lake, English-Oaker, and a mixture of Gold,

For Drawing a fair Complexion.

To do this, make a mixture of a small quantity of White, and twice as much Lake and Vermillion, temper them well with the flat of a Knife upon the Pallat, and let it be used as the deepest Carnation in the Face; then adding a little part more of White, reserve that for a lighter Carnation, and yet a third part being reserved, add more White to it till it comes to the lightest colour in the Face, and so proceed to prepare the faint shadows.

In doing this, take Smalt, and mix it with a little White, which may conveniently serve for the Eyes; then separate the greatest quantity, and add to the rest a little Pink, and these well tempered will be sufficient for the greenish shadows in the Face, then proceed to prepare your deep shadows; do it with Pink, Ivory-black, and Lake, a like quantity of each, temper them well together, and if the Complexion you draw requires redder shadows, add more Lake; if bluer or greyer, more Black, if yellower, more Pink.

Having prepared your Pallat with suitable Colours for a fair Face, consider again what other Colours are required; if the Complexion be more Brown or Swarthy; in such cases temper the Colours as before, putting a little quantity of burnt Oaker amongst the Lake, and Vermillion and White, that it may amongst

mongst other heightened Colours appear Tawny; and in this Case temper so much Oaker as will just turn it; and for your very deep, and very faint Shadows, use the same as for the former Complexion.

For a Tawny Complexion use the same as before, however prepare the shadows of burnt Oaker and Umber.

For a very black, or dark Complexion, prepare the shadows as the foregoing, but as for your lightening, take Lake, burnt Oaker, with White and Black, however, but a little of the White must be put in at first, that by degrees it may be the better worked up, and observe that the single Shadows laid at first upon your Pallat, and well tempered according to the foregoing directions, serve as Shadows for all Complexions.

Further Directions for Colouring Garments, &c.

These Garments, or Drapery, requires to be made suitable in their Colours; for Red therefore, lay the Ground with Vermillion, glaze it over with Lake, and heighten it with White.

For Scarlet, let Vermillion be the lightest, deepned with Lake, and heightened with Indian Red.

For Crimson Velvet, lay a Ground of burnt Oaker, Vermillion and Indian Red, glaze it with Lake, and touch it up with Vermillion.

For a sad Red, heighten Indian Red with White, and deepen with Black, Pink and Lake, well mixed together,

For Green, heighten Bice and Pink with Masticot, and deepen it with pink and Indico.

For Green Velvet, lay the dead colour with a

a little White and Lamp-black, glaze it with Verdigrease, deepen with Pink and Indico, and heighten with White and Pink.

For Yellow, use Masticot, Umber and Yellow Oaker, lay the dead colour with Masticot and White in the highest places, and with Oaker in the meanest, in the darkest with Umber, glazing when dry with Pink.

For Blue Garments, take Indico and White, first laying the White in its due place, and then your mean colour, viz. Indico and White, well tempered in their proper places, then deepen with Indico, and when dry glaze it with Ultramarine.

For Black Garments, let the dead colour be Lamp black and a little Verdigrease, and go over it when dry with a little Ivory black, and when you have heightened it with White, go over the Work with Verdigrease and Ivory-black.

For Orange colour, mix Lake and Red-Lead, laying the lightest part with Red-Lead and White, the mean part only with Red-Lead, and the deeper with Lake, and if it be necessary you may heighten with White.

For a Cloath Colour, let the Ground be Umber and White, and for the deeper Shadows Black and Umber, for the mean Oaker and Umber, and heighten it with Oaker and White. And so much for Colouring Garments.

Instructions how to Frame and Paint Landskips.

In this Work of Painting with Oil, begin with the Sky and Sun-beams, and the lighter parts, and then the Yellow, which must be done with Masticot and White, the next your blue

Sky

Sky with Smalt, leaving no part of the Ground uncovered, but lay the Colours smooth all over, working the Sky downwards towards the Horizon, still suffering it to go fainter as it inclines nearer to the Earth, and work the Tops of Mountains and other Objects very remote, so faint as they may appear lost in Mist or Air, and as for the nearest and lowest Ground, it must be a dark brown Earth Colour, enclining a little to Yellowish and Green, as the nature of it requires, the next a light Green, and so proceed gradually; as they lose in their distance you must lessen their Colour, observing not to make any thing that is to be seen at a great distance perfect or really, because you must imagin it is at such a distance that you cannot well discern it, but express it in Colours weakly and faintly, as your Eye judges it may be, always taking notice to place the Light opposite to the Dark, which will very much extend the Prospect, and do it so that the Shadows may lose in their proportion of distance, their Force by little and little, as they remove from the Eye, observing always to put in the strongest Shadows nearest; put no Moon nor Stars but in a Night-piece, for they are not otherways naturally proper, because they cannot be well seen in the Day; if you imitate an over-cast Sky, where black Clouds threaten a Storm, the Shadows may be on the meeting parts of the Clouds. This may be also done with Colours mixed with Water wherein Gum-Arabick has been dissolved.

If in any fair Landscap you express the Light of the Sun, always observe throughout the whole Piece, that you cast the Lights of your Trees, Rocks, Hills, Buildings, Ruins, and all other things expressed in it that way; observe

also

also to lessen your Bodies proportionably, as they are nearer or farther distant, and carry it off so far that the Earth and Sky, or Water seem to meet. Rivers as they run to a distance must lessen their Streams; so Ships or Boats, and the like.

As for Living Creatures, Beasts, Fowls and Serpents, or Insects, you must consider their proportion, shape and colour, and get Draughts or Patterns, which will be better than Printed Directions, and these kinds being numerous, for Brevities sake I must omit to treat of them.

To lay on Metzò-tinto Prints on Glass.

In undertaking this, curiously lay the Prints flat ways in warm Water, of the finest and thinnest Paper, for that which is rough and thick will not do near so well, if at all; let them soak well, and your Glass being very white and thin, go over it with Venice Turpentine spread thin with a pliable Knife, and dab it all over with your Finger, that the Turpentine may seem rough.

This done, take the soaked Print and lay it on a clean Cloth smooth, then press it with another to take out the Water, then lay it on a Glass, the Print next it, beginning at one end, stroaking outwards the part already fixt to the Glass, that neither Wind nor Water may be retain'd between to wrinkle it; then with a little Sponge, or your Hand, wet the backside, and lightly by degrees roll off the Paper carefully, without making holes, especially in the Lights, which are the tenderest, and when the Print appears very plain on the backside, let it dry about two hours, then varnish it o-

ver with Turpentine or Mastick Varnish till you can see through it, and a Nights drying will prepare it to be work'd on with Colours.

If you would have all the Paper off, so that nothing but the Print may remain, lay it as before, with Oil of Mastick and a little Turpentine, and a Brush will fetch off the Paper.

To paint Landskips of Metzotinto.

As for the Posture to do any of this Work, the best is fitting to a true Light, your Pencils must be fine, and in the first place glaze all the places that require, and if you would have them thin as they should be, and soon dry, mix Varnish as they are laid on, and in four Hours you may venture other Colours.

In this Work glaze the nearest and greatest Trees, Ground them with brown Pink, or if you fancy them greener, use distilled Verdigrease, and where the Leaves and Weeds that appear in some Landskips very sprightly and extraordinary green, must be glazed with distill'd Verdigrease and dutch pink, the Trees appearing farther off, with only the former; the Hills, Rocks, Mountains and Trees at the greatest distance, glaze with Smalt, a little Lake, and Verdigrease thinly mixed with Varnish; as for the Skies, use Ultramarine or fine Smalt, mixed with thin Varnish, glaze it over two or three times with a large clean Pencil, and nimble Strokes; if Buildings or Ruines of Buildings appear in it, finish them first. And the mixture of Colours for these consist of yellow, Black, White, and now and then a tincture of Red.

To finish Ground Trees and Skies, begin with the nearest and largest Trees, do over the lightest Leaves with white Pink and a little Smalt, and neatly do over the darkest and nearest Leaves with a little Pencil dipped in Varnish; and those Trees you would have very beautiful, Paint with a mixture of Verdigrease, Yellow Masticot and White, the darker parts with white Verdigrease and Pink, as also those Trees you glaze with Verdigrease only, they being very light mixed with White.

As for the Skies and Foreskips, if any Clouds appear, let them be touched with Varnish, and a light Colour made of white Lake and Yellow Oaker; touch also with these the light parts of Hills, likewise Towns, and the remotest distance; then mix White and Smalt, as light as conveniently may be, and Paint over the Sky, add a Tincture of Lake for the dark Clouds; let the Colours lie even and thin, and when finished, give it time to dry, to make it look more lively, set the Picture against the Light that the Shadows may appear.

*Of Painting Figures this way, as Men,
Women, &c.*

In Painting a Face, where there are deep Shadows, glaze and touch them thinly with brown Pink, Lake and Varnish, also the black Ball, and white Speck of the Eye, as you will be directed by the Print, the round white Ball must likewise be of a convenient Colour; if the Lips are to be of a curious Red, glaze them with Lake or Cazamine, and then begin with the dark side of the Face, and Paint the Shadows with the Colour more red than usual; to
do

do this, Yellow Pink, Vermillion and White, are most proper; and note, no Varnish must be used in Painting Flesh Colours, except in glazing the Shadows, for the Varnish dries so fast, that you cannot sweeten the Shadows of the Flesh.

After this give a few touches on the strongest Light of the Face, as the Forehead, top of the Nose by the Eyes, Chin and Mouth, which Colour must be made white with pale Masticot, or Yellow Oaker, and a little Vermillion mixed, according to the Complexion intended, then mix that Colour a little darker, and lay it on all the Face that before you had not very carefully Painted; yet that for the Mouth and Cheeks must be somewhat redder.

Now with a fine clean Pencil, that has been worn a little, hatch and sweeten the Flesh Colours and Shadows sweetly together, taking care to cleanse your Pencil as often as it is requisite, so that whilst the Piece is moist and wet, you may regulate Cheeks too pale, or any other Defect.

If the Complexion be Swarthy, mix the Flesh Colour with White, Brown, or Yellow Oaker, and light Red, with agreeable Shadows; and by this means you may Paint Naked Breasts, Bodies or Hands, always being careful that your Pencil be steadily guided, for the least Slip marring the Feature, and trespass not on Features and Lines of a disagreeing Colour.

How to Paint the Hair.

In this Painting, you have no occasion to use Colours or Varnish near so dark as the Life,

for the Print contributes to the darkening of it; as suppose you were to Paint Black Hair, you mix black Red Oaker with a touch of light Red or Lake, and these may well produce an Ash-Colour, and the Hair coloured with it, will show you a natural Black; if you would make the Curls stronger, with a lighter Colour touch the lightest part, and the darkest with the contrary, which you may well see through, if the Colours are not laid too thick.

Of Painting Garments or Drapery.

If you are to Paint Cloth or Drapery, in a broken Colour, observe carefully its Mixture; however you must make three degrees of that Colour, one the proper Colour, another more light, and the last darker, for it must be for the darkest Folds, and the lightest for the lightest Pleats, and that between both for the other Parts.

With a worn Pencil sweeten the Colour, so that the Folds may lie hard, and if you intend to make a Fringe, Embroidery, or the like, add to them Shell, or Powdered Gold or Silver; mix your Minerals with Gum Water, having a fine Pencil to hatch or imbroider the Flowers; and touch the Fringes and other Embroideries before you glaze, after this manner, *viz.* I imagine the changable Draperies ground to be Purple, and the light Yellow, then must I take a fine Pencil dipped in Varnish, and thinly touch all the lightest parts of the Folds with Yellow Masticot, if there be occasion to repeat it, for it must be granted the Colour must be very thin with Varnish.

When dry, I must glaze all over with Lake,
Smalt,

Smalt, or Ultramarine, once or twice with Varnish, and so it must dry; and then I mix three degrees of Purple Colour, of Smalt, Lake and white, and lay them on as directed; and by these Measures fitting your Colours suitable to your Intention, you may paint any other coloured Drapery, which in this little Book I want room to particularize.

The curious Art and Mystery of Japanning.

To be a Proficient in this Art several Matters are required, and these you must consider as suitable, not only in Property, but Goodness, that your Cost and Labour may not prove in vain.

As Two Strainers made of Flanel, moderately fine, or of course Linen, in the nature of a Tunnel, for to strain your Lac Varnish, and the other for your white Varnish, and the first of these may serve for Lackers, when your Occasion requires you to make them; besides these there are required Two Tunnels of Tin for the same Purpose as before; Glass Bottles and Vials small and great must be in a Readiness, as to suit with the Quantities of Varnish your Business requires you to use, and Gally-pots to put it in when you design to work; as also to mix your Blacks in, when they come to be ordered with other Things.

As for Tools, they are no less requisite, for without them this Art would be insignificant, and therefore to furnish your self with them, you must have Pencils according to the Greatness or Smallness of the Things intended to work on; those for the Varnish must be made of Camels Hair very soft, and are of various

Prices, as to the Largeness or Fineness; likewise drawing Pencils, placed in Swallow, Duck, or Goose Quills, as the Fineness or Largeness of the Stroke requires, and the longest haired Pencils are accounted the best in this Business; you must have in a readiness a considerable Number of Mussel-Shells to mix Colours and Minerals in, as the Occasion shall require it. *Dutch* Rushes are another Material useful in this Matter, to smooth the Work before it is varnished, or take off the Knobs or Grittiness from the Ground, or when it is varnished.

Tripoly is proper to polish this Work with when varnished, being reduced into fine Poudre, and sifted; as for Linen Rags, you must be provided with them, both fine and course, to clear and polish this Work, also Olive Oil for a clearing; as many of these Things shall be directed hereafter, as they occur in due place, in the Work.

Several Things necessary to be used in this
ART, &c.

Of Spirit of Wine.

This is of main use in Varnishing, and if it be not properly qualified it will spoil the Varnish, and not be capable, for want of Strength, to dissolve your Gums, or make them spread, and so consequently lie uneven upon the Work; and to know when this Spirit is sufficiently rectified; put some of it in a Spoon, and put a little Gunpowder in, and if it burns out, blows up the Gunpowder, and leaves the Spoon dry, then it is a good Spirit, but failing in this, and leaving the Spoon moist when the Flame extinguishes, it is not fit for your Use.

Of Gum Anima, Gum Lac, and Gum Sandarack.

To chuse these well, as for the first, take the most transparent, clearest and whitest, which is the best.

The second also, called Seed-Lac, chuse that free from Drois, Sticks, or Dust, large grain'd, and bright.

As for the third, take that which is large, and very white, casting the least Yellow, free from Dust and Drois.

Of Shell-Lac, White Rosing, Bole-Armoniack, and Venice-Turpentine.

As for the first, that is best which is most perspicuously transparent, will easily melt, and draw out with your Fingers as fine as a Hair.

As for the second, chuse for your Use that which is the whitest and clearest.

As for the third, that is most fit for your purpose that is free from Grittiness or Gravel, and is of a blackish Red Colour, commonly called French Bole.

Of Gum Elemi, Gum Arabick, and Gum Capal.

As for the first, chuse the hardest, and freest from Dirt and Drois.

Chuse the second white and transparent.

As for the third, that is best for your Use that is whitest, free from Drois, and the thick dark Stuff incorporated with it.

*Of Gambogium, Isinglass, Benjamin, or Benzoin,
Dragon's Blood, &c.*

There are other things necessary in this Art, and ought to be well chosen.

As for the first, the best is that of a bright Yellow, free from dirty Thickness and Drofs.

Chuse as to the second that which is whitest and clearest, free from Yellowness.

As for the third, the best is that of a bright Red Colour, much like to clarified black Resin, free from all Drofs and Filth.

The fourth, when the best, is of a bright Red, free from Drofs, it may be had, as the others, at the Druggists, but the Prices I set not down, because they generally rise and fall.

*Of Silver Dust, Brass Dust, Green Gold, dirty
Gold, Coppers, Powder, Tinn, &c.*

The Silver Dust, the best is brought from beyond the Seas, and is known from the Counterfeit by being squeezed between your Finger and Thumb, giving a glorious Lustre, as indeed it does in the Work.

Brass Dust, by Artists called Dust Gold, is the best, made in *Germany*, the best is of a fine bright Colour, nearest resembling Gold, try it as the Silver Dust; as for the course sort, tho' it will work pretty well with Gold Size, yet it will not do so with Gum Water.

Green Gold, a corrupt Metal so called, is very good in this Work, for casting a fading Green Colour.

Dirty Gold is a corrupt Metal, casting a dark, dull, though silverish Colour, bearing pretty well a Resemblance to dirty droffy Gold.

Coppers

Coppers are three sorts, Natural, Adulterate and Artificial; as for the Natural, being cleansed, it may be ground without any Mixture.

The Adulterate is most fit for a Ground, and serves commonly to lay other Metals on, as in hatching or heightning Gold or Silver on; but the Artificial is of a higher and brighter Colour than either: There are also used in this Art, those called Speckles, of Copper, Gold, and Silver, and divers other Colours differing in fineness, which may be work'd as the Artift fancies, either on the outsides of Boxes or Drawers, or on Mouldings, and may be purchased ready done.

Of Colours proper in Japanning.

Some of these are called transparent, on which Gold and Silver are to be laid, or some light Colour, so that by this means they appear in their proper Colours, lively and beautiful.

Of these, for a Green, are distilled Verdigrise; for a Red, fine Lake; for a Blue, Smalt; have to grind these on a Porphiry, or Marble-Stone. Grind with a Muller what quantity you please with Smalt or Verdigrise, with Nut Oil, as much as will moisten the Colours, and grind them till they are as fine as Butter, put then the Colours into Shells, and mix them with Oil of Turpentine till they become thin for use; lay them on Silver, Gold, or any other light colour, and they will then become transparent, altering their lightness or darkness, according to that of the Metal or Colours that are placed under them; this for a curious Red, may be done with Lake, but then use drying Oil to grind them with.

If you design Figures on the Back of your Table or Boxes, as Trees, Birds, or Flowers, those may be done for White, with White Lead; for Blue, Smalt, mixing it with Gum Arabick Water, and mingle them as you please, to make them lighter or deeper; Flake White is a very pure White, but the other will do for ordinary Work; and you must use either of these with Smalt, or all other Colours that have not a Body of their own; you may for a Purple use Ruffet, fine Lake, and Sea Green, and it may be done with other sorts of Reds and Greens, and except transparent Colours, all must be laid with Gum Water.

Seed Lac Varnish, how to make it.

Your Ground Work is good rectified Spirits, of which you may take a Gallon, put it into as wide a necked Bottle as you can get, that the Gums may the better come out; then of the best Seed Lac add a Pound and a half, let it macerate twenty four Hours, or till the Gums are well dissolved, with often shaking to keep them from clogging together; then with Flannel Strainers strain it into a Tin Tunnel, placed in the Mouth of the empty Bottle, the Strainer may be made as before directed, and squeeze the Dross in the Bag, and throw it away as of no use; then let the Varnish settle, and pour it off into other Bottles, till it rises thick, and no longer; then strain the thick part, and settle that again, and keep the fine Varnish for your use, and this does as well, without the Danger of attempting to boil it, which endangers Firing the House, and the Party's Life.

Shell Lac-Varnish, how to make it.

This in curious glossy Pieces of Work is not of value, but in varnish'd Woods it succeeds. To make it, put to a Gallon of Spirit a Pound and a half of the best Shell Lac, order it as the former, and tho' it has no Sediment, it is proper however it should be strained, to take away the Sticks or Straws that may be in the Gum, nor will it ever be fine and clear as the former, but turns in a few Days to Cloudiness, yet it is fit for course Work, and much used.

White Varnish, how to make it.

Take an Ounce of White Gum Mastick, and an Ounce of White Gum Sandarach, Three Ounces of the best and clearest Venice Turpentine, Gum Elemi half an Ounce, Gum Capal an Ounce and a half, Gum Benjamin or Benzoin of the clearest half an Ounce, and half an Ounce of White Rosin, and the Gums being separated in their Quantities provided, put the Rosin and Capal in a Glass Vial, with half a pint of Spirits, that they may be dissolved; and to the same End, in a Glass Bottle of Three Quarts of Spirits put the Venice Turpentine, Animæ, and Benjamin, and in another Bottle the Gum Mastick and Sandarach, in a Pint and a half of Spirits, then dissolve the Gum Elemi in a Quarter of a Pint of Spirits, powder very finely the Animæ and Benjamin, the better to dissolve in the Spirit, and then pour them off into one large Bottle, let them stand to fine as the former, and then strain them thro' a Linen Cloth gently, not hardly pressing the Sediment, lest you carry

the Brittiness of the Gums along with you, to injure the Varnish.

General Rules for Varnishing.

This is a Point nicely to be observed, or your Labour and Cost may be in vain.

1. If you chuse Wood that requires to be varnished, let it be exempted from Knots, very close grain'd, smooth, clean, well rused, and freed from Greasiness.

2. As for your Colours and Blacks, lay them even, and exquisitely smooth, sweep all Roughness off with your Brush.

3. Keep your Work ever warm, but not hot, to raise Blisters, or crack it, which nothing but Scraping off all the Varnish can amend.

4. After every distinct Wash let your Work be thoroughly dry, for Neglect in this Point introduces the Fault of Roughness.

5. After it is varnished let it lye by and rest as long as your Conveniency will admit, and it will be the better.

6. Ever take care to begin your Varnish Strokes in the middle of the Table, or what you do it on, and not from one End to the other, and your Brush being planted in the middle, strike it to one End, then take it off and fix it to the place you began at, so draw or extend it to the other End, and so continue it till the whole Plain be varnished over, and beware you overlap not the Edges, which is when the Varnish hangs in Splashes or Drops on them, therefore to prevent it draw your Brush gently once or twice against your Gallypot side.

7. When you have proceeded so far as to
come

Come to polish, let your Tripoly be very fine, and the finer the Work, let it be still the finer, and use fine Rags, keeping your hand moderately hard upon it, and brighten or polish one place as much as you intend, e'er you leave it and pass to another, and always have regard, that you polish your Work as smooth as you intend at one time, but if your Conveniency will admit, let it rest two or three days before you give the finishing Strokes after you have polished it, but come not too near the Wood to make it thin and hungry, for then it will require another Varnish, or remain to your discredit.

8. Take a sufficient quantity of Tripoly at the first polishing, till it begins to come smooth, and so lessen by degrees, and carefully observe there be no Scratches or Grating in it.

9. When you have a mind to clear up the Work, wash off the Tripoly with a Sponge, and soak up the wet with a fair Linen Cloth, and with Lamp-black, mixed with Oil, gently smear the whole Face of it, let no corner nor moulding of it escape, that the whole Piece may be freed, then with other Linen, and a hard Hand cleanse it of that, and these things done there will be an admirable Gloss.

For white Work, let your polishing be gentle and easy, do it nimbly, and clear it with Oil and fine Flour, and in exactly observing these Rules you will prove an Artist.

Of Black Varnishing or Japan.

Provide for this Imitation of Japan, a close grained Wood, well wrought off, Rub it smooth and keep it warm by a Fire, but never
so

so near as to burn, scorch, or blister your Works, then add to Seed-Lac Varnish, as much Lamp-black as will at the first strokes colour the Wood; do it three times, permitting it to dry well between every doing, and also Rub it well, then with a quarter of a pint of the thickest Seed-Lac, mixed with an ounce of Venice Turpentine, put in more Lamp-black, so much as may well colour it, and with this wash it six times, letting it stand twelve hours between the three first and the three last Washings; then with the finest Seed-Lac just tintured with the Black, do it over twelve times, letting it dry between every time doing, after which let it remain for five or six days before you polish it.

At the end of that time, take Water and Tripoly and polish it, having first dipped your Cloth in Water, and rub it till it gains a very fine Smoothness and Gloss, but do not rub so as may any ways wear off the Varnish, which cannot be easily repaired, then use a Rag wetted without Tripoly, and clear it up with Oil and Lamp-black, yet polish it not all at once, but let it have some days respite between the first and last Polishing, and at least three or four days.

White Varnishing or Japan

This must be curiously done without any soiling, and therefore you must be cautious of letting any dirty thing come near, whilst you are doing it.

To begin this Work, scrape as much Isinglass as will make it of a reasonable thickness, or when dipping your Pencil into it, it will with

2 Stroke whiten the Body which has been passed over with a Brush, but let it be in neither of the Extrems, too thick or too thin, then mix it with your Size, whiten your Work over with it, and when dry, repeat the same, covering it from all manner of Dust before it is Varnished; it must be whited three times and dried between every one of them, smooth and lay it as close as you can to the Wood with your Rushes; then mix White Flake with your Size, only so that it may lie with a full and fair body on the Piece; and whiten your Work three several times with this, drying between each, then make it with your Rushes very smooth, but keep your distance from the Wood.

In the next place, take white Starch boiled in fair Water till it come to be somewhat thick, and when it is lukewarm, wash over your Work with it once or twice, drying between whiles, and let it then stand twenty four Hours, then take the finest of the white Varnish I have directed you to make, wash your Pencil in Spirits, and wash or point your Work six or seven times, and after thirty or forty Hours do the like again, and if done with a dexterous Hand, a better Gloss will be set on it than if it had been polished; but if it miss of that Gloss, it is requisite that you polish it; and in order thereto, you must accommodate it with five or six Washes of Varnish more than the former, and it must continue to settle well about a Week before you polish it.

In Polishing, your Linnen and Tripoly must be of the finest, being neat and careful in all this Operation, your Hand carried light and gentle

Be having your Cloth neither too dry nor too wet, and clear it up with fine Flour and Oil.

Ifinglass Size, how to make it.

Break and divide an ounce of Ifinglass into little pieces, put it into a glazed, clean, and well covered Pipkin, and let it for twelve hours soak in a pint and a half of fair Water, then place it over a gentle Fire, till it boil well at leisure, and when the Water is consumed to a pint, let it stand to cool leisurely, and then it will be a Jelly, and may be used in the White Varnish, and other Works, but make no more at a time than you will use, for in two or three days it will prove naught.

Red Japan, to make it.

The Reds are properly three, *viz.* the Common Red, the Deep dark Red, and the Light pale Red.

In the first Vermillion is proper, mixed with the thickest of Seed Lac, warm the Work and mix your Vermillion with the Varnish in a Medium, carry it over in four times, permitting it to dry as the former; and if your Reds be in a good Body and full, Rush it smooth, then with the ordinary Seed Lac Varnish wash eight times, and after twelve hours Rush it again, and then for a curious outward covering, give it eight or ten washes with Seed Lac Varnish, and after five days Polish it, and clear it with Lamp-black and Oil.

Of the Dark Red.

The Common Red laid as before directed,
deeper.

deepen it with Dragon's Blood mix'd with your Varnish, and when it has a pretty good Colour go over it with Lac-Varnish, which will much deepen and strengthen the Colour, and in all Things else, as to polishing and clearing, do as in the former Red.

Of the Pale Red.

To do this grind white Lead with a Muller on a Stone, and when it is finely done, mix it with so much Vermillion as will make it a pale Red, mix Varnish with them, and give the Work four Washes, and follow the Prescription of the common Red, considering well that the after-Varnish will heighten the Colour.

An Olive-Colour'd Japan.

Take English Pink Colour, grind it with common Size, and when it is like Pap, mix with it a Proportion of Lamp-black and White Lead, and work it as in other Japanning.

Chestnut-Colour'd Japan.

To do this take Indian Red, or else brown Red Oaker, grind it well, and mix it with ordinary Size, then grind a little White Lead extraordinary well with the small Size, mix with it Lamp-black, and so both with the Indian Red Oaker, stir and well incorporate them together; if the Colour be too bright darken it with the Lamp-black, if too dark lighten it with White Lead, and so bring the Colour to your Mind, considering always that your Varnish will heighten it.

With

Art's Master-piece.

With this wash over your Work, let it dry, and repeat it till your Colour lye full and fair, rush it smooth, but not close to the Wood, unless you design anew to begin your Work, and give it a second Varnish.

After it has stood three or four Days give it a Lustre with Seed-Lac, and when dry fit it for polishing with White Lac, Varnish, and clear it with Oil and Lamp-black.

Blue Japan.

To do this grind white Lead very fine, add Smalt as finely ground, mix them with Iinglass Size, the White Lead grind with Gum Water, let there be a Proportion of White and Blue, and mix them well to the Thickness of common Paint, go over your Work with it, and when it is well dry proceed so three or four times, till the Blue lyes with a fair Body, rush it smooth, and go over it again with stronger Blue, and when dry wash it with the clearest Iinglass Size, having a new Pencil for that purpose, then when it is dry warm it by the Fire and go over it with a Pencil dipped in White Varnish seven or eight times, and so let it continue for a Day or two, then wash it as often as before, and so continue many Operations at intermitted times, for a Week at least must pass before you can well venture to polish it, and when it is polished clear it with Oil and Lamp-black.

Note, That in no wise you mix your Colours with Iinglass Colours too strong, lest when dried they be apt to crack, fly, and spoil the Piece; but when you lay your Wash of clear Iinglass, to keep your Varnish from tarnish-
ing.

ing, or soaking into your Colours, then it is proper that it be of a full and strong body.

And thus much may very well suffice the Learner, to give him an insight into this excellent Art, from whence I shall proceed to other things useful and profitable.

Of Speckles, for the Adorning Japan'd Wood.

Mix so many Speckles as you have occasion for, with ordinary Lac-Gum-Varnish, so much as when they are put into a Gallypot, will fit them for working with a convenient Pencil, but not so thick as Colours, keep them stirring very well with a Brush, and generally warm by the Fire; This continue till you perceive the Speckles lie thick and even to your mind, so beautify them with three or four Washes of Varnish, mixed with Turpentine, and this, unless you intend to Polish, will be sufficient, but then you must give it after all this eight or ten Washings with the Prime Lac-Varnish, drying between whites, and then Polish; and on this manner you may lay on all coloured Speckles; but Silver requires Seed Lac-Varnish, and the best white Varnish e're it can be brought to a good Polish, but if not to be Polished, you may spare your Varnish.

To lay on Speckles in Japan Work, &c.

If you design to adorn your Work with Flowers, Rocks, or Garments, &c. Varnish the places intended with a fine Pencil, and through any small Sieve shake the Colours you design, whilst the Varnish is wet, and sweep up in Rock-Work all Speckles that straggle on
the

the edges, with a new dry Pencil lodge them on the sides and top of the Rock, which sticking, will render the Work more beautiful, and give it a Shadow or Reflection.

This must be done with all diligence, and no intermission had till finished, till once covered, and being once dry, operate again, and so one upon another successively, to shape it to your mind; and in sweeping the Speckles, intermix not one portion of scattered parts with the other, that are of a different Colour, but every parcel in the proper station, to beautify the better: At first when laid, it will look dull and heavy, but the securing Varnish in a little time will add to it a pleasant, beautiful Colour; and so you may do Flowers, Trees, Garments, and many pleasant things to adorn your Work.

Wood, how to overlay with Gold or Silver.

To prepare this Work, you must be furnished with Parchment,-Size, that is, the Cuttings of Parchment, boiled in fair Water to a jelly, and when strained and cooled, it will prove a strong Size.

When you are to use it, put as much as you shall want into an Earthen Pot, and make it hot, then as it is cooling, scrape as much fine Whiting into it as will colour it, mix them well with a clean Brush, and with this Mixture white your Wood or Frame, striking or jobbing your Brush against it, that it may the better enter into the Hollowneses of carved Work, then give it rest, that it may dry.

This done melt the Size again, and put in more Whiting, to render it some degrees thicker,

er, and with this do over the Frames seven or eight times, or as you see there is a Necessity, and when it is dry open with a Gouge no bigger than a Wheat Straw the Veins in the Carved Work that the Whiting has stopped up, then with a fine wet Rag and your Finger, carefully smooth and water, plain it over, and rush it smooth when dry, if Necessity require it; and in this Condition it will well receive your Gold or Silver Size. But before I proceed I shall teach you to make these Sizes.

The best Gold Size at present in use.

Take an equal Quantity of the best *French* and *English* Bole-Armoniack, grind these fine on a Marble Stone with fair Water, then scrape into it a little Candle-grease, incorporate and grind all these well together, then mix a little Quantity of Parchment Size with a double Proportion of Water, and the business is done.

The best Silver Size in use.

Grind fine Tobacco-pipe Clay very small, mix with it as much Lamp-black as will turn it of a light Ash Colour, and to these add bits of Candle-grease, grind them very fine together, a Mixture of Size and Water, and try these on the corner of the Frame; if it be rough in burishing put more Oil or Grease, and as near as you can bring it to a due Temper, that it may work well.

To Size your Frames, or other Matters.

To do this make the Size Blood warm, and
with

with a fine Brush stir it very well, till it is somewhat thin, go over the Frames with it twice or thrice, yet touch not the hollow Parts of the deepest Carvings, where the Gold cannot conveniently be laid, for the Yellow Colour nearly resembling first laid on, the Fault will not soon be discover'd; let it dry four or five hours, and then try the Gold if it will burnish on it, if not alter the Size, and do it over again.

To lay on the Gold, in order to burnishing.

Let your Frame, or other Matter intended, be set on an Eazle, place the Leaf Gold on a Cushion, to be held in your Left Hand with the Pallat and Pencil. You must for this Work have a Swan's Quill Pencil, or a larger of Camels Hair, if the Work require it, dip it in Water, and wet no more of your Frame at a time than will take up three or four Leaves, make your beginning at the lower End, and so proceed upwards, laying on whole Leaves, or half ones, as it requires; then wet such another part of your Work, and lay on the Gold with your Pencil, or Cotton, gently pressing it very close; and having gilded the upright sides, turn the Frame, and proceed the same way with the Ends, then survey the Spots and Places that are omitted, and cut small Parts of Gold to cover them, when wetted, with a smaller Pencil than before; when it is so finished let it stand till the next Day that time you leave off.

To burnish the Gold Work.

Take a Wolf or Dogs Tooth, if you cannot get Aggets or Pebbles formed into the same Shapes,

Shapes, and burnish so much of the Work as you design, leaving the Ground of the Carving untouch'd, and some other Parts, as you see best convenient, which, in respect of the burnishing, being rough, the better sets it off; that which is omitted to be burnished must be matted, or secured with Seed-Lac-Varnish, or Lacker; if you design it a deeper Colour, then must your Work be repossess, or set off with Lacker, mixed with Saffron and Dragons Blood, or the Colour called *Ornator*, and with a fine Pencil dipped herein touch the Hollownesses of the Carving, and the Veins of the Foldages or Leaves; if you fancy it is not deep enough, you may by a repetition make it so, and the Work is done.

To lay on Silver Size.

Warm the Silver Size that is newly ground and mingled well with weak Size, as you did the Gold Size, do it once or twice, and let it dry, and try the Leaf Silver, if it will burnish on it, it is prepared for the Work; but if it will not, make an Alteration in the Size, and for the rest lay on the Leaf Silver, and do as you did by the Gold, and it will answer.

Note, as farther Rules, and ever observe them.

1. Let your Parchment Size be somewhat strong, keep it not long, lest it spoils.

2. Crind no more Silver or Gold Size than just you have present Occasion for.

3. Ever keep your Work clean from Duff, after it is sized and gilded, or else in the burnishing it will be full of Scratches.

4. Do not whiten or burnish Gold Size in hard frosty Weather, for then the Whiting will be apt to peel off, and the Gold flaw.

The Art of Gilding Metals.

To prepare the Gold.

Take Ducket or Leaf-Gold what Quantity you desire, observe to beat the Ducket very thin, and put this Gold, with as much Quick-silver as will just cover it, into a Gallypot, where let them continue half an Hour, where immediately after the Mixture stir them with a Stick, then strain them thro' a piece of Leather, squeezing with your Hand till you have forced out as much Quicksilver as you can industriously do, so that what remains in the Leather looks more like Silver than Gold, yet this only must be employed in Gilding after the following manner.

To Gild with Gold, Silver, Copper, Brass, Princes Metal, &c.

Brush first your Metal well with a Wire Brush, wet it with Water or Beer, and Brush on till the Dirtiness or Filth be quite removed, that the Gold may more closely join it; prepare then your Quicksilver, by mixing it with a little *Aquafortis* in a Vial, three or four Drops of the *Aquafortis* to an Ounce of the Quicksilver, quicken your Work with it, *viz.* rub it over with a Rag, or your Finger, till it appears all silver'd, or touch'd. This done,

Take your prepared Gold, and with a small Knife, or Iron Tool proper to the Purpose, spread, or overlay the whole Piece, omitting no part, give it two or Three little Heats before you give it a thorough Heat, so that with a Hair
Brush

Brush like a Comb Brush, you may dab and spread your Gold, these little heats making the Quicksilver more ready to comply; then give it the thorough Heat, which will compel the Mercury or Quicksilver to evaporate or fly away; then take it from the Fire, and with a scrub Brush, untouched with Quicksilver, cleanse it as at first; if you perceive any untouched Spot of Quicksilver, the Gold must be laid on it again, when it is cleansed with a scratch Brush, and after this manner you may heighten its Colour if you see it necessary.

To heighten the Colour of Gold.

Take an equal quantity of Salt, Argol and Brimstone, mix them with as much fair Water as will cover the gilded Metal when put into it; boil them well, and tying your gilded Metal in a string, plunge it in for a little Space, often plunging, and looking as often on it as you draw it out, and when the Colour is heightened to your Expectation, dip it in cold Water, and the Work is done; you may in the foregoing manner double or treble Gild, till the Gold enriches it to a lasting Thickness and Colour.

To Counterfeit Tortoiseshell.

To do this well, let the Wood you intend to work on be very close grained, clean and smooth wrought off, as Pear Tree, or the like; but if rough grained, you must prime it with Whiting, as you are taught in Black Japanning, for coarse grained Woods, Rub it smooth and go over it with Seed Lac-Varnish, the breadth of a Silver Leaf, which take up with Cotton,
and

and lay on it moist, as close as may be; then wash again, and place on another Leaf of Silver, and so continue till the Wood is overspread with Silver, and when dry, sweep off all the loose Silver with a Hair Brush, then finely grind Collin's Earth, and mix it with Gum Water or Common Size, and with this, having added more Size or Gum Water than it was ground withal, Spot or Cloud the Ground Work, having a fine, true, natural Shell by you to imitate, and when this is done, you will perceive several Reds, lighter and darker, appear on the edges of the Black, and many times lie in Streaks on the transparent part of the Shell; to imitate this finely, grind Sanguis Draconis with Gum-Water, and with a fine Pencil draw those warm Reds, flushing it in about the dark places more thick, but fainter, thinner, and lesser of Colour towards the lighter parts, so sweetening it, that it may in a manner lose the Red, being sunk in, in the Silver, or more transparent parts.

When it is done and dried, give at least six washes of Seed Lac-Varnish, and when it has continued twenty four hours, Rub it gently, and when it is smooth, and fit for the second Operation, grind Gambogium very finely in an equal small quantity, put these into as much Seed Lac-Varnish as will serve to wash it another six times, then let it stand twelve hours, and give it the third Varnishing, and with the last Mixture wash it so often, that the Silver is changed to a Golden Colour, and the Work is done.

To Dye Wood a curious Red.

The Wood that takes this Colour must be ve-

ry white, and to begin it put a handful of Allom in a moderate Kettle of Water, and cast your Wood into it, and when well soaked, take it out, and put in two handfuls of Rasped Brasil-wood, and when that was boiled well, put the Wood in again for a quarter of an Hours boiling, and it will take the Colour.

To Stain a Curious Yellow.

In this case, take the knotty Ash or Bur, that is very white, knotty and curled, Smooth and Rush it very well, and when it is well warmed, wash it over with a Brush dipped in Aquafortis, then hold it to the Fire till it desists to smook. Rush it again when dry, then Polish it, and Varnish it with Seed-Lac, and it will be of a curious Colour, not inferiour to any Outlandish Yellow Wood; and if you put filings or bits of Metal, as Copper, Brass, &c. each Metal will produce a different Tincture.

To Stain or Dye Wood Black.

Boil Logwood in Water or Vinegar, and two or three times Brush or Stain your Wood with it when very hot; then take Nut-Galls and Copperas, bruise them well, and boil them in Water, and with it Wash or Stain your Wood so often, till it be a perfect Black; or rather keep it in the hot Liquor if you can put it in, and the Dye will penetrate the better. Read more of this in *Art's Treasure*.

*To dye or stain Wood for Inlaying of Flowers,
or other things in Cabinets.*

Get moist new Horse Dung, and squeeze out the moisture through a Cloth, put it into several small Vessels fit for your purpose, and dissolve Gum Arabick and Roach Allom, each the quantity of a Walnut, and with these mix Reds, Greens, Blues, or any Colour that is suitable

able to the Work, stir them often three or four Days, then take your Wood, particularly Pear-Tree for White, cut it into the thickness of Half Crowns, or so much as will suffice any In-layed Work, and in a Square or Length, according to your desire, boil up the Liquor or Colours very hot, and put in the Wood till the Colour has well taken; some indeed you may take out sooner, that the Colour being less strong, may the better agree with your party-coloured Flowers, Shading and the like.

To Dye or Stain Ivory, Bone, or Horn, Red.

Soak fine Lime about twelve Hours in fair Rain Water, then pour off the Water well from the settling through a Linen Cloath, and to each Pint put half an Ounce of Rasped Brazil Wood, and having boiled your Materials in Allom Water, boil it in this, and it will give a curious Tincture.

To Stain Horn, Bone, Wood or Ivory, Green.

Prepare your Materials by first boiling in Allom-Water, then grind the common thick Verdegriſe, or Spanish Green, a moderate quantity, adding half as much Sal Armoniack, and put them into the sharpest Wine Vinegar, as also the Materials you intend to stain, and keep them there till they have taken a good Tincture.

To Stain or Dye Horn, Box or Ivory, a curious Black.

To do this, put small pieces of Brazil-Wood into Aquafortis, and so continue them till they appear green; then wash well your Materials in them, and boil Logwood in Water, into which put them whilst they are warm, and in a little time the Ivory, &c. will be of a curious Black, so that being polished, it will look like Ebony or Japan; and if you would have any

any part for Flowers or the like, remain white, draw them before staining with Turpentine Varnish, and the Black will not touch them, and afterward you may fetch them, and clear up with Oil and Lamp-black.

To Stain Skins Green,

Bruise a good quantity of the Leaves of Nightshade very well, dissolve in the Juice well strained out about two Ounces of Allom, then put in half an Ounce of Verdigrease, suffer them to stand over a gentle Fire twenty four Hours, then warm, dip in a Brush, and strike over your Skins ; let it dry, and repeat it till it has taken a pleasant Green.

An approved way to Colour White Leather.

These Skins must be hung in Lime or Chalk Water, that the Wool or Hair may be entirely stripped off, and they become supple, stretch them smooth on Tenters, brush them over with Allom-Water very warm, and so tincture them with the Colours you design, suitable to your purpose.

To put a Curious Black on Leather.

Take two Pound of the inward Bark of an Old Elder, the like quantity of the Rush or Filings of Iron, put these into two Gallons of Rain Water, and close them tight up in a Vessel, and when they have stood about six Weeks, put in a Pound of Nut-Galls well bruised, a quarter of a Pound of Copperas, let them simmer a considerable time over a Fire, and after twenty four Hours standing, and often stirring, pour out the Liquid part, and go over your Leather with it warm, and it produces a curious *German Black*.

To Colour Leather a bright Red

Dip your Leather first in Allom-Water, and

rub it well therein ; then take stale Urine, boil it till it is half consumed, scum it well, and put to it an Ounce of the best Lake, Rasped Brazil Wood two Ounces, and an Ounce of Allum ; add to these half an Ounce of Sal Armoniack, stir them well over a moderate Fire two Hours, pour off the Liquid part, and brush over your Skins with it, till it takes a good Tincture, remembering ever to let the Skins in all Colours dry well between each going over with your Brush, and your Expectation will be answered to a very considerable Advantage,

A curious French Yellow for Skins.

Take Wood-Ashes and Chalk, of each a like quantity, and when you have made a good Ley with Rain-Water, strain out the finest part, and set it over the Fire, then put in a sufficient quantity of Turmeric well bruised or beaten to Powder, and as much Saffron as may give a lively Tincture, let it stand over a moderate Fire, but not boil, till it becomes pretty thick, and being warm, Colour the Skins with it.

For a deep Blue, or Purple.

Strain out the Juice of Elder-Berries, put to two Quarts an Ounce of Allum, half an Ounce of Smalt or Indico, set these over a gentle Fire, and when warm, brush your Leather over with this Composition.

For a Crimson Velvet.

Dissolve Cake-soap in fair Water and Bole-Armoniack, each 3 ounces, place it over a gentle Fire till the Liquor grows clammy ; then put in a little handful of Grains of Cochineal, 2 ounces of Red Lead, an ounce of Lake, a quarter of an ounce of Vermilion, and a little piece of Indico ; beat these over a gentle Fire till they are thick as the glare of an Egg ; then go over the Skins with

with a soft Brush dipt in it, till the colour arises to your mind.

To imitate Turkey Blue.

Take two ounces of Smalt, a quarter of a pint of red Wine, half a pint of Vinegar, an ounce of white Starch; incorporate these over a Fire till they come to a moderate thickness, then soak the skins in Allom-water; add to the Composition a pint of Water wherein Gum-Arabick has been dissolv'd, and stir it well; go over the skins three times, drying them 'twixt whiles, so when well dry'd, polish 'em over, to make 'em glossy.

For a light Green,

Take the Juice of the Herb call'd Horsetail, add to it a little Allom, Verdigrise, and Coppe-ras.

To cover or dress Skins with Gold or Silver.

Grind brown Red with a Møller on a marble Stone, add to it a little Water wherein Chalk has been dissolv'd, and lightly go over the Skins till they look whitish, and before they are dry lay on the Leaf-Gold or Silver a little lapt one over another, that no space be found wanting; when they stick well to the Leather and are dry, polish 'em over with smooth Ivory, or a Horse-tooth, and it will give a very glorious lustre. The Silver you may go over with Lacquer Varnish; and change it into a Gold colour.

Or another way, Take Glare of Eggs or Gum Water, brush the Skins over with it, so lay on your leaf-Gold or Silver, doing as before.

To make Skins shine, without Silver or Gold.

Take Gum-water, the Glare of Eggs, and the powder of Antimony, grind and mix them well together, and (the Skins being dry) lay it on with

a Brush 3 or 4 times, letting them dry between every time; then burnish them over, and they will have a curious gloss like Silver, which tintured with Lacquer Varnish, will produce a fading Gold-colour.

To dye Bristles a Red Colour.

Take half an ounce of Allom, a quarter of an ounce of Vermilion, and an ounce of raspt Brasil-wood; put these into a pint of Vinegar, so boill them moderately thick, and dip in the Bristles when 'tis very hot; which continuing there some time, 'twill be a fine Red. You may make larger quantities of the Liquor with Ingredients proportionable, and thus dye Feathers.

Feathers or Bristles green.

Take Verditer and Verdigrise each an ounce, put 'em into a pint of Water, soak the Feathers or Bristles in hot Water, and then put 'em into this Liquor boiling hot, and there remain until they have taken a good colour. According to the Complexion of your Dyes, you may make 'em this way any Colour.

For *Blue*, let your Dyes be Indico and Bice.

For *Black*, Galls and Logwood, with a little Copperas.

For *Purple*, Lake and Indico.

For *Carnation*, Smalt and Vermilion.

For *Yellow*, Yellow-berries and Saffron, dissolving a little Tartar in your Water.

For *Orange*, Turmerick and red Lead: And so of any other Colours you fancy.

Of dying Silks, Stuffs, Cloths, Thread,
and other things, of divers curious
Colours.

To dye Silk a sanguine Colour.

Take a pound of Green Weed, and as much
Allom, bruise 'em, then pour on 'em fair Water,
and half a pound of rasp'd Brazil; set them over
a gentle Fire well to mix 'em, then put in the
Silk, suffering it to seeth therein, and so continue
it, strengthning your Dye, and dipping till you
perceive the Colour has taken well; after that
rinse it in Ley of Wood-ashes or Oak-bark, and
so clear it with fair Water, then dry and press it.

To dye Silk a deep Carnation.

Take Whitegall and Allom, the Herb call'd
Foli well dry'd the quantity of a pound, 2 ounces
of Spanish Red, four of Indian Lake; boil them
in fair Water over a gentle Fire, and when they
come to the height of tincture dip your Silks in
them, and let 'em have good dippings three or
four times, and the Colour will take very well.

To dye Silk Quoins Red.

Let these be steep'd well in *Allom* water, then
give 'em a gentle heat, adding in the heating
Bran-water, a pound and a half of Greenweed,
so heat it up and put the Silk into it, but let it
not seeth, then rinse it in Ley of Woodashes,
after that in Water, then put in your Logwood
rasp'd or in powder, and so heat it up a second
time; so in thrice dipping the business will be
accomplish'd.

To Dye a curious Yellow.

Take Wood, the Stalks, Seeds and Leaves, and lay them to soak in Wood-Ashes Leys three hours, then seeth it till it is sufficiently sodden, and put it into a mixture of hot Water and Urine, so beat it up, and strain the Liquid part through a Sieve or Streiner, adding Verdigrase, and so boil it up with the Ley already sod, stirring and well mixing the Liquor about three Hours, and when it is very hot, dip three times.

To Dye Silk a Rose-Red.

Take to every four yards and a half you intend to Dye, a pound and a half of Nutgalls, boil them in fair Water unbruised two hours, shift the Water, then put in the Silk or Linen, letting it soak four hours, then wring it dry, and heat it in fair Water, wherein Allom has been dissolved, then put in half a pound of Brasil Powder, and a pound of Green-weed, and so by dipping in gentle heats, the Colour will heighten.

A good Black Water, for Silk or Cloth.

Take an Ounce of Lamp-black, half a pound of Nutgalls, bruise the latter, and put them into a Bottle of Water, with a Handful of the Filings or Rust of Iron, beat them up, adding a quarter of a Pound of Copperas, seeth it to a third part consumption, then add half a Pint of Gum Water, and it will not only be for present use, but keep long, and be a very good black.

To Dye Purple.

In this case if you dye Silk, you must take to each pound of it an ounce of Allom, and a gallon of Water, dissolving the Allom therein over a gentle Fire, then put in the Silk, and let
it

it continue there about four Hours, then take Lake and Indico, each a quarter of a pound, a quart of Urine, then adding a little handful of Cochineal, heat them up into a Dye, and dip your Silks or fine Stuffs into it as usual.

To Dye a very fair Blue.

Take any Silk, Stuff, or Cloth White, and soak it in Water, that done, wring out the Water very well, and add two pound of Woad, a pound of Indico, and three ounces of Allom, give a gentle Heat in fair Water, and so dip till you perceive the Colour to take well.

Carnation.

To make this a curious right Colour, take dried Purper, soak it in Man's Urine for a Night, then take what you have to Dye, and soak in Alom Water twice, seeth the Purper in fair Water, and then set another Vessel to receive the Liquor and dip therein.

For a pleasant Light Red.

Boil two gallons of Wheat, and an ounce of Alom in four gallons of Water, strain it thro' a fine Sieve, dissolve more Alom half a pound, and as much of white Tartar; add three pound of Madder, to perfect the Colour, and put in your Stuff, Cloth, &c. at a moderate heat.

Black for Velvet, &c.

Take half a pound of Copperas, a gallon of Smiths-Water, two pound of Galls, burnt Ivory, Oak-Bark, and Shoemakers Black, each an ounce, well ground, two gallons of fair Water, mix them well, and set them in the Sun or other warm place a Month, often stir it, and

at a moderate warmth dip your Velvet, or other things designed for deep Blacks.

*To make Red-water for Silk or Woolen Violet,
Green, Azure, or Yellow.*

Take two gallons of fair Water, four ounces of Brasil, and being half consumed in heating, remove it from the Fire; then put in an ounce of Grains, a quarter of an ounce of Gum Arabick with a quarter of a pound of Allom well bruis'd, and having stood all night, it may be used in the morning.

To dye Woolen, Yarn, or Wool.

Take two pound of Wood to every four pound of Yarn, &c. and two gallons of Water; put in two handfuls of wood-Ashes, and when it seeth put in the Yarn or Wool, and let it continue half an hour, or more; then wring it and put it in again, and let it seeth as long as before, and if it were a brown blue, it will be a dark green, or of a white yellow colour.

To make Bran-water.

This is very necessary in Dying, and therefore you ought to know how to prepare it. Do it with half a peck of Wheat-bran to two gallons of fair Water, and half a pound of bruis'd Allom, over a gentle Fire; suffer it to stand about a week, often stirring it before you use it.

To make grey Florrey.

Let the Florrey be soak'd 24 hours, then wring it thro' a Cloth, and take Ashes of Vine-sprays, with them make a Ley, and upon a Table spread
the

the Florrey, about two hours; put the Ley into three Vessels, and shift the Florrey out of one into another, and before you dip put Vinegar in, so the Florrey will be right, and your Colour good.

To dye Linnen with Crampenade.

To three ells of Linnen use a pound of the Crampenade, and a gallon and half of Water, so to a greater quantity proportionable; set it over a Fire till it begins to seeth, put in at that time two ounces of Galls, then your Linnen, and when you take it out (which must be often) wring it and put it into Allom-water: But if you would have the Colour darker, 'tis requisite to have a Ley of unslak'd Lime or Chalk-stones.

To dye Linnen, Thread, or Cloth a good Red.

Soak a pound of Samfleur 24 hours in two gallons of Water, suffering it to heat over a gentle Fire; add two ounces of Vermilion, half a pound of raspt Brasil, and an ounce of Allom dissolv'd in fair water, so dip and order as in other things.

Thus Reader have I given you a great Insight into the Mystery of dying Silks, Stuffs, Cloths, and other things relating thereto, which may by Practice prove advantageous.

The Art of Perfuming.

To make Essence of Hyaccens.

Take a strong glass Bottle, put half a pint of Spirit of Wine into it, add an ounce of Cinnamon, half an ounce of Cloves, a gross of Ginger, and

as much Coriander as you can hold with your Forefinger and Thumb well beat, 3 or 4 grains of black Amber, or Ambergrise beaten in a stone Mortar; stop the Bottle fast, and set it on Sand, exposing it to the Sun for a month. In this case it must not be full, nor stand for Rain to touch: This is a curious and wholesome Perfume.

Essence of Amber.

Put a pint of Spirits of Wine into a strong Glass Bottle, then in a small stone Mortar beat a gros (or the 8th part of an ounce) of black Amber or Ambergrise, put it to the Spirits with half a gros of the Bladder of Musk very small; stop it close, and set it for a fortnight, as the former, shaking it twice or thrice a day when the Sun shines hot upon it; let not the Bottle be full, lest the Spirits break it; then let it stand quiet another fortnight, and 'tis done.

Rosa Solis, or perfum'd Liquor.

Put two pints of Water and two pounds of Sugar in a Copper Pan over a gentle Fire, let 'em boil to the consumption of a fourth part, then put in two spoonfuls of Orangeflower-water, throw in the White and Shell of an Egg well beaten with a Whisk, stirring it in the Liquor; when it boils take it off and strain it thro' a Bag several times, and when you perceive it well clarified, pour in of the best Brandy, then Essence of Hypocras or Amber, and you'll have excellent perfum'd *Solis*.

Angel Water.

Put into an earthen Pot a quart of Orangeflower-water, a quarter of a pound of Benjamin, two ounces of Storax, a quarter of an ounce of Cloves, half an ounce of Cinamon, two or three bits of Calamus; set the Pot on a gentle Fire to
the

the consumption of a fourth part, add a Bladder of Musk, then let it cool; strain it well from the Dross, and put it up for use.

Millefleur, or the Water of several Flowers.

To do this, put in a strong Glass Bottle a pint of Angel-Water, then in a little Mortar beat twelve Grains of Musk, then put several Flowers of various Scents, more of the weaker than of the stronger, that there may be a Temperature, and allay them with that Water, and when well infused, pour it off into a Bottle, and keep it well closed for use.

Orange Flower Water.

To make this well, infuse two pound of Orange Flowers in a quart of Water three or four Hours, and so distil them in a cold Still: This Water is good for cleansing Snuff, making Angel-Water, or perfuming Wash-Balls or Skins.

The Queen of Hungarys-Water.

Put a quart of the best Spirit of Wine into a strong Glass Bottle, and two large handfuls of Rosemary Flowers, a handful of Thime, and half a handful of sweet Marjoram, the Leaves only, and as much of Sage, keep the Bottle close stopped, and expose it to the Sun a Month, and then you may dissolve the bigness of a Bean of Orcanat, bruising it with a little Spirit of Wine, and put it into the Bottle; then expose it four or five days more to the Sun, and it will be of a fine red Colour, and a curious Scent.

Pastils or Perfumes, of divers kinds.

Pastils of Roses made into Wax-Candles.

Take a pound of the Dregs of Angel Water, beat them when dryed very fine, and searce them through a Hair Sieve, then put to them a handful of the Leaves of Roses newly gathered, dissolve Gum Adragant in Rose-Water, and beat the whole long together, to well Incorporate it, then rowl up peices as big as your Finger taperwise, and when they are dry they will burn like a Candle, and give a very curious scent.

Perfumed-Pastils for Beads or Medals.

Dissolve Gum Adragant and Arabick in Millefleur Water, and put into it Marchal-pouder as much as will stiffen it into a PASTE, rub the Moulds you cast them in with Essence of Flowers, and the Beads or Medals will be of a curious Brown or Coffee colour.

Another.

Take of Frangipan and Cyprus Powders, each a like quantity, put them in Gum wherein Millefleur-Water is the greater part, and make them into Pastils.

To make a Liquid Snuff, excellent for the Cure of the Head-ack, or against Apoplectick Fits; a rare Secret.

Take Distilled Betony-water a pint, half a pint of Rosemary-Flower-Water, infuse in these

these four ounces of the best *Virginia-Tobacco*, finely sifted into Powder; let them stand warm by the Fire, or in the Sun twenty four hours, then squeeze out thro' a very fine clean Cloth the Liquid part, Scent it with a little *Amber-grise*, and a very small quantity of *Musk*, drop into it three or four Drops of *Chymical Oil of Nutmeg*, or *Cinnamon*, shake it well when the *Settlings* are taken off, and keep it in small close Vials for use, snuffing or spirting up a very small quantity at a time into your *Nostrils*; the Scent of it, without snuffing up, remedies an ordinary *Head-Ach*.

Cosmeticks, or Curious Receipts for Beautifying the Face, Hands, or any Part of the Body.

Benjamin Water, an excellent Beautifier.

Take a pint of good strong *Brandy*, a pint of *Spirit of Wine*, half a pound of *Benjamin*, and a quarter of a pound of *Storax*, an ounce of *Cinnamon*, and half an ounce of *Cloves*, and four *Nutmegs*; beat the *Spices* and *Benjamin*, and putting them into the *Liquids*, stop them up close in a strong *Glass Bottle*, and let it stand upon *Sand* in the Sun, in the heat of *Summer* a Month, and then pour it off, and clarify it.

This cleanses the *Skin* of *Morphew*, *Tann'dness* or *Sun-burning*, and causes a delicate *Complexion*, as does the *Queen of Hungary's Water*, which I have already taught you to make.

To prepare Sponges for the Face.

Having chose the best and smoothest Sponge, and cut off what is superfluous, soak it, changing the Water till it looks clear, then dry it, and dip it in Orange Flower or Angel Water, pour over it a little Effence of Amber, then squeeze it but a little and let it dry, and it will be for your purpose, in Cleansing and Beautifying the Skin, far beyond the use of Linen.

To cause a Fair Complexion.

Distil Fumitory, Rosemary-Flowers, and Scabious, each two good Handfuls in a Bottle of White Wine, and a Quart of Dew gather'd off the Grass or Corn, with clean Napkins and Handkerchiefs, and so wrung out; keep it close stopp'd in Glass Bottles, and wash the Face and Hands with it as there is Occasion.

To cause a Fresh-coloured Complexion.

Take Oil of Myrth an Ounce, three Drops of Oil of Sulphur, an Ounce of the Oil of Sweet Almonds, mingle them well, and anoint the Face going to Bed, and the next Morning take it off with Benjamine Water.

To make a Clear Pale Complexion.

Distil the Blossoms of Pease, Beans and Peaches, each a good handful, in two Quarts of Whey, and wash the Face with it.

A Pomatum to refresh the Complexion, and take off Pimples and Redness.

Take half a pound of the Leaf of a Hog's Fat, work it well in fair Water till 'tis very white, then put it into a new earthen Pan; put in a quarter of an ounce of Copperas, two Pippins cut in pieces without paring; mix an ounce of the Oil of sweet Almonds, then strain it thro' a Linen Cloth into clean Water, and make it into a Pomatum, so with it anoint the Face.

To take away Freckles.

Take the Gall of a Cock, an ounce of Rye-Meal, a quarter of an ounce of the Juice of Hemlock, an ounce of Oil of Turpentine; make them into an Ointment, and anoint the Freckles with it, and in a little time they will disappear.

A Pomatum to plump the Lips and Cheeks.

Take an ounce of fresh Butter, and as much Virgin Wax, set 'em over a gentle Fire, and throw in black Grapes, bruise them with a Ladle, then put in two ounces of Orange-flower-water; bruise in a Porringer (the bigness of a Bean) Or-canet, allay it with a little Orange-flower-water; put them into the Pomatum, working them up together with a Spoon, and then put it up for your use.

A liquid Paste to wash the Hands without Water.

Take of bitter Almonds a pound, bruise them well

well in a Stone Mortar till no Lumps remain; wet it with a little Milk, and make it into a Paste; beat the Crumbs of white Bread with a little Milk, and put these with the Yolks of Eggs without the treadle into the Mortar to the Paste. Beat them up yet more, and then boil them till thick, and keep 'em up for use.

*To take Spots or Stains out of the Face, Hands,
or any part of the Body.*

Take Litharge of Silver an ounce, the Juice of Limon and a Sea-Onion each a Spoonful, mix these with a quarter of a pint of Whitewine Vinegar over a gentle Fire, and apply a Rag dipt in it to the Spot, and often doing so will remove it.

To whiten the Teeth like Ivory.

Take bruis'd Coral and Pumice-stone finely sifted, and by rubbing the Teeth well with them they'll be as white as those of Infants.

To make Hair grow and curl.

Take the Ashes of Fern-roots a handful, as much of those of the Vine, and make a Ley with them in Ox Urine, boil in it a handful of the tops of Hyssop, so wash the Ends and Roots of the Hair with it, or any bald place, and the Hair will immediately grow and curl.

To

To take Spots or Stains out of Silks, Stuffs, Woollen, Linnen; also Pitch, Tar, Rosin, Wax; and to recover faded Silks or Linnen.

To take Spots or Stains out of Silks.

Take an ounce of Flaxseed, bruise it well in two or three spoonfuls of the Juice of Limon; add a quarter of an ounce of white Lead, and as much of burnt Bone, mix 'em over a gentle fire to a thickness, lay them on the Strainer.

To make a Soap that will take Grease, Spots, or Stains out of Cloth, Silks, or Stuffs.

Burn a pound of Roach-Allom, and finely powder it; add to it half a pound of the Root of an Herb call'd *Florence-flame*; a new-laid Egg, and two pound and a half of Cake-soap; bruise and mix them well together; that they may be made up with fair Water into Balls; then first wash the place stain'd or spotted with fair warm Water, scrape the Soap moist on it, and wash it out, and in three or four times thus doing the Blemishes will disappear.

To take Spots out of Linnen.

Take two spoonfuls of the Juice of an Onion, and as much of Lime-Juice, wet it two or three times, as often drying it by a Fire; wash it immediately in a good Laver, and 'tis done.

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A good Ley to take out Spots or Stains.

Put half a pound of Soapboilers Ashes into two pints of Water; let 'em remain three days, with often stirring; then pour off the clear Ley and mix it with Fullers Earth; then lay it thick on the place, drying it in the Sun, or by a Fire, and in two or three times doing 'twill answer your expectation.

To take Spots or Stains out of colour'd Silks, Staffs, Linnen or Woollen.

Take Pumice-stone and grind it to powder, put to it sharp Vinegar and Fullers Earth; let it lie on and dry, then wash it out with Milk and Flower of Almonds.

A way to take out Tar, Pitch, or Resin.

Dab on this Oil of Turpentine, let that dry and put on more, and the third time when it is dry'd you may rub out the Pitch, &c. for 'twill crumble like Dirt.

To take out Oil or Grease.

Mix burnt Bone and Fullers Earth with a little Whitewine, and plaister it on the Spot, then dry it in the Sun, or by the Fire, and it will suck out all the Grease in once or twice doing.

Sweet Powders, Perfumes, &c.*To make Gross Powder à la Marchale.*

Take of Iris sixteen ounces, of dry'd Orange flowers twelve ounces, Coriander four ounces, a pound of *Provence* Roses, two ounces of Angel-water Dregs, an ounce of Calamus, two ounces of Souchet, half an ounce of Cloves, beat them well one after another in a Mortar, then mix 'em, and finely sift 'em into one incorporated Powder.

Powder of Jessamine.

To make this, mix about a thousand Sprigs and Flowers of Jessamine amongst twenty pound of fine Starch in a close Box, lay them even, making a Bed of Flowers and another of Powder, and let them lie 24 hours without touching; then shift the Flowers, and put fresh ones (the same quantity) for three days, and the Powder will be well scented.

Powder of Musk'd Roses.

To do this well, you must put the Musk'd Roses into the Powder, and leave them there twenty-four hours in a close Box; so you must shift them three times, and they will give an excellent Scent.

Powder of Orange-flowers.

Mix a pound of good-scented Flowers with twenty pound of Starch, or Rice Grounds, mingle

gle them, and sift 'em twice a day at least, for these are subject to heat, and in twenty-four hours you must shift the Flowers, and put the same quantity of fresh ones in, and so continue till there is a good scent, keeping it always close unless when you use it.

Powder of Violets, or Iris.

In this case beat the Iris, and pass it through a Sieve; mingle it with the Powder, and it gives the natural scent of a Violet.

Powder of Amber.

Mix Jessamine, Rose, and Musk-powder together, each a like quantity; then mingle with them the eighth part of an ounce of the Essence of Amber; then sift the Powder, but break not the lumps made by the Essence till dry'd, then sift them in, and mingle them well; and in this manner with Flowers, Essences, &c. you may make what Scent you please, Starch being the Ground of these Hair-Powders, which sucks the Scents, and retains it a very considerable time for use.

Washballs perfum'd, &c.

To make Common Washballs.

Take a pound of white Cake-soap, scrape it, and beat it well in a Mortar, take out the Crumbles that are not well incorporated, and put in a pound of Starch well powder'd, an ounce of the Essence of Orange, half a pint of Maca-

Art's Master-piece.

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net-Water prepar'd, stir them gently with a Pestle, then beat till they are all well mixed, make the Paste up into Balls, and let them dry.

Wash-Balls of Neroli.

Take eight Pound of Cake-Soap well cleans'd, put to it, when scrap'd, as much of Rose or Orange Flower, as will temper it, stirring it twice a day, the better to soak; then having beaten it well, put in a pound of Labdanum in Powder, and two ounces of Neroli; mix them into a Paste, and so make them into Balls.

Bologna Wash-Balls.

Take three Bundles or Boxes of these Balls, beat them and dip them in Angel-water, as much as will well wet them, add half a pint of Benjamin Water; make two equal Cakes of the Paste, by well beating, then beat very small two drams of Musk or Civet, with two ounces of Balm of Peru, drop'd in by degrees; add to these the gross Essence of Amber, and some Essence of Cloves, and some Cinnamon; mix these with the Paste, make it into Balls, and keep it for a very curious Perfume; and in this nature other Wash-Balls or Paste may be made, and perfum'd with various Scents. *Art's Treasure.*

Sweet Bags to make.

Take of Common Rose Leaves twelve ounces, Lavender Flowers a pound and an half, Sweet Marjoram Leaves twelve ounces, four ounces of the Leaves of Myrrh, six ounces of Time Leaves, four ounces of Mellilot Leaves,
one

one of Rosemary, two of Cloves, and one of Musk Roses, a good handful of Citron and Orange-Flowers; put them in a Pot, making a Ley of Leaves and Flowers, and another of Salt, then stop it well, and every other day stir it with a Stick, exposing it to the heat of the Sun in Summer, but not in the Rain, and fill your Sweet-Bags with these and Powder.

To perfume Gloves, Fans, or Skins, with Flowers, &c.

Grind on a smooth clean Marble-Stone, two drams of Civet, add three drops of the Essence of Orange-Flowers, and other Flowers, made with Ben-Oil, add more, a few drops of Millefleur-Water, grind by it self Gum-Adragant, about the bigness of a Hazle-Nut mixed with Orange-Flower-Water; after that, mix your Civet, dropping a little of the Millefleur-Water; so do till all is well mixed, then put your composition into a Mortar, and pour more Water, stir it till it comes to a quarter of a pint, lay it very even on your Gloves, Skins, &c. dry them in the Air, open, and order them for Colouring, and by this Rule, you may Perfume them with any Scents.

Roman Gloves, how to Perfume.

Grind on a fine Marble a dram of Civet, with a few drops of Essence of Orange-Flower-Water, then mix Gum-Adragant, of the bigness of a Hazle-Nut in other Orange-Flower-Water, then warm a little Water, and infuse in it a dram of Amber, with a few drops of Orange-Flower-Water, pouring more to it by degrees

degrees, till all come to about a quarter of a pint; then mix again the Civet with some drops of the same Water, adding, till the whole comes to half a pint, and then Perfume your Gloves, Skins, or Fans with it.

How to Colour and Perfume Gloves, at once.

Chuse what Colours you like best, and grind them on a flat Stone, with a little-Ben-Oil, or the Effence of Orange-Flowers, or Jessamine, pour Orange-Flower-Water by degrees, still grinding; then put to the Colours Gum-Adragant dissolved in Orange-Water; then being well ground, pour all into an Earthen Pan with more Water, taking the Colours, being not too thick, and then dip a soft Brush into it, and rub over Gloves, Skins, or Fans; let them dry in the Air, then smooth and order them as is requisite; grind a bit of your Colour with a little piece of Gum-Adragant infused in Orange-Flower water, and very clear, rub them over with this, and it will keep the Scent a long time.

Several sorts of Snuff, Solid and Liquid, how to make and perfume them.

To prepare and Cleanse Snuff.

The Ground of it is Tobacco dried into Powder, that it will sift curiously through a fine Sieve, and then it requires briefly to be washed and cleansed in the following manner.

Soak it in fair Water twenty four hours, then take it out, and squeeze it very well in a Cloth, dry it in the Sun on Wicker Hurdles, over which a fine Linen Cloth is laid, keeping it turning, and stirring almost continually ; being dried, sprinkle Sweet-Water on it, as Orange, Jessamine, Angel, or the like, then dry it again, and wet and dry it three times, by which means it will be capable to take the Impression of any Scents by being sprinkled on it, or infused ; but if you design to colour it Red or Yellow, it must be done before it is scented, especially for Flower-Scents, it may be coloured with Red or Yellow-Oaker.

To Perfume Snuff with Flowers:

The Flowers most used in this, are Jessamine, Orange, Musk Roses, Common-Roses, Tuberoses, &c. But these if used naturally, must be helped with the Essence of other Flowers, or the same ; to do this get a wooden Box, large enough for your purpose, lined within with dry White Paper, lay a laying of Snuff and a laying of Flowers, and let them stand twenty four hours, then searce or sift the Snuff, to take out the Flowers, and renew them with other Flowers ; continue it four or five days, then separate it, and keep it in close Boxes in a dry place for use.

Snuff with Spanish Perfume.

Take a pound of Snuff that has been Perfumed with any sort of Flowers, beat in a Mortar twenty Grains of Musk, with a little lump of Sugar, so put in your Snuff by degrees,
gently

gently stirring it about, and when the Mortar is full, empty it gently, and cover it to keep in the Scent as much as may be, then put in ten grains of Civet, put in the Snuff again, and mingle them well, and so keep it dry for use.

*How to take Spots or Stains out of Scarlet
or Velvet.*

To do this, take Soapwort, a Herb of that name, bruise it, and strain out the Juice, add a little Black Soap, mix them well to a moderate thickness, daub over the stained or spotted place, wash it out with warm water, and suffering it to dry, do it again twice or thrice, and it will effect your desire.

To take Iron-Moulds, or Spots out of Linen.

Dissolve the Poulder of Burnt Alom in the Juice of Limon, wet the place with it, and dry it with the Back of a Spoon, in the fore part of which is a Live Coal, and in doing it five or six times, the Iron Mould or Spot will wash out.

To Recover Faded Linen.

Heat a Gallon of New-Milk over the Fire, and scrape a pound of Cake Soap into it, and when the Soap is well dissolved, boil the Linen well therein, and then clap it into a hot Laver of Water and other Soap, wash it out well, and it will recover its Strength and Colour.

To make Powder-Inks, as the *London-Pouder Ink, &c.* and *Liquid Shining Japan-Ink.*

*To make that which is called the London
Pouder-Ink.*

Take ten Ounces of the clearest Nut-Galls, bruise them, and sift the Pouder very fine, then add White Copperas two Ounces, Roman Vitriol three Ounces, Gum-Arabick, or Sandarack an Ounce, bruise and sift them very fine, so that though they appear White, a little being put into Water, will in a little time turn it, and an Ounce of the Pouder will make a pint of very black Ink.

To make Japan, or Shining Ink.

Take Gum-Arabick and Roman Vitriol, of each an Ounce, Galls well bruised a pound, put them into Rape Vinegar, or Vinegar made of clear Small-Beer; let them remain in a warm place, often stirring, till the Liquor becomes Black, then add to a Gallon, an Ounce of Ivory Black, and a quarter of a Pint of Seed Lac-Varnish, and it will be a curious Black Shining Ink.

A Pouder-Ink to rub on Paper, and Write on.

Bruise about twenty Nut-galls, and half an Ounce of Roman Vitriol, as much Gum Arabick, and Gum Sandarack, mingle these finely together,

together, when well bruised and sifted to a Ponder, rub the Paper hard with it with Cotton Wool, and Polishing it with a piece of Ivory, write with Water, and in a little time the Letters you write will appear a fair Black, as if written with the best Ink.

Receipts for the Cures of sundry Diseases and Grievances, Incident to Men, Women, and Children.

For the Ague.

Take a little handful of the Tops of Rue, boil them in a Quart of White Wine, give the party half a Pint, four times successively, upon four Cold Fits approaching, if the Ague last so long, and put the party into a warm Bed. This must be drank as hot as the Patient can drink it.

To Ease and remove the Pains of the Gout.

Take two Ounces of Sansaparilla, cut it small, and boil it in a Quart of small Beer, till a third part be consumed, drink it as hot as may be, and about a quarter of an Hour after, bathe it with your warm hands a mixture equally of the Spirit of Wine, and the finest Oil of Turpentine, where the afflicted Pain is, and it gives present ease, and in a short time makes it cease.

For Pains of the Teeth.

Take Henbane-Seed, and Hyssop-Seed, bruise them finely together, mix them that they may

stick well, with a little Oil of Spikenard, if hollow, stop the Tooth with these, and a piece of Lint dipped in the Oil ; if not, tie up the quantity of a large Pea in a fine thin Rag, and lay it to the Root of the Tooth, and the Pain will soon cease.

To take away Corns.

Cut well and close, take out as much of the Coar as you can, then take Burnt Allom, and the Pith of an Oyster that sticks to the Shell, dried and powdered ; incorporate these with a little Venice-Turpentine ; put into the hollow-ness, if there be any, a little Tent of Lint dipped in the Oil of Cloves, and lay on the other as a Plaster, and it, in a Weeks time, with thrice renewing, takes away the Corn, making Flesh arise to fill the hollowness.

For Blasts, Burns, or Scalds.

Take Ointment of Tobacco a quarter of an Ounce, Pidgeons or Pullets Dung half an Ounce, Sallad Oil two spoonfuls, Snow-water the like quantity, Cream a quarter of a pint, and the White of a Newlaid Egg ; beat and bruise these till they become a pliable Ointment over a gentle Fire, spread them on a fair Cloth, and lay it to the afflicted Part, and in three or four times renewing it will take out the Fire, and put the Party in an easie way of Recovery.

For the Stone or Gravel in the Reins or Bladder.

Take Green Parsly, if it can be got, that is running to Seed ; if not, other Parsly, stamp it, and

and squeeze out an Ounce of the Juice, and as much of that of a very hard Onion ; take a little handful of Sloes, bruise them that the Stones may break, mix these with a Pint of White-Wine, and boil it well, then add to the strained Liquor a quarter of an Ounce of calcined Crabs-Eyes or Claws, and let the Patient drink fasting half of it, and move up and down swiftly, and within a quarter of an Hour the rest ; and it will speedily afford ease, and bring away Sand and Gravel, if it remain in the Ureters, or Neck of the Bladder or Yard.

For a Consumption.

Take a Pint of Stroakings of a Red Cow, warm from her, and beat the Yolk of an Egg in it ; and then sweeten it with Sugar or Roses, a Spoonful of red Rose water, and a little Nutmeg scrap't in. Drink it in a Morning for a Month: This Cured one given over by the Doctors.

For the Cramp.

Dry Eel-Skins, and wrapp about your Legs and Thighs.

Cough or Cold.

Take a Quart of Ale, and put a handful of Red Sage into it, Boil it to a Pint, and put a quarter of a Pound of Treacle into it. Drink it warm going to Bed.

Bruises Inward

Drink Poffet-Drink wherein Comfry-Roots is boil'd, or heat Sack with Saffron and Treacle over the Fire, and Sweat in Bed ; and some time eat Honey mixed with Nutmeg and Butter. Read more of these things in the *Way to*

get *Wealth*, by making 23 sorts of Wine; also to make China Varnish, add Black Ground for Japan-Work, to Flack Wood and Gild; with divers other Curious Matters. Sold at the *Ring in Little Britain*, price 1 s. 6 d.

For the Jaundice.

Broth made of Strawberry Leaves and Roots, Eaten some Days together, Cureth it. A Monk got great Riches by it. Read more of these, in a Book call'd *A Thousand Notable things*, wherein are many choice Receipts in Physick, and to make all sorts of Inks; dye Bones, Ivory, &c. make Sealing Wax, to make fine Pictures and Shashes for Windows; with Receipts for Perfuming, Gilding, Dying, Colouring, and on most Subjects whatever. Sold at the *Ring in Little Britain*, price 1 s. 6 d.

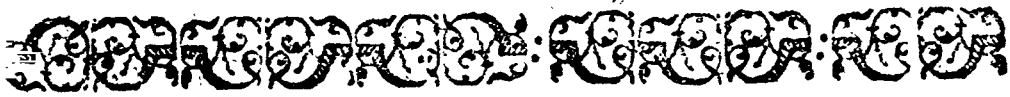
Aches and Pains.

Ale sudd till as thick as a Salve, apply'd thereto, marvelously cureth it; often proved.

Chapt Lips.

Rub Chaps or rough Lips with the Sweat behind your Ears, and it will make them fine, smooth, and well Coloured. Read a Book called *The Way to save Wealth*, by living well for Two Pence a Day, and to save Soap, Shoes, Candles; to write Secretly, keep Cloths from Moth, Dye Reds, take Spots out of Linen and Woollen, make Verdigrease, Sympathetick Ink, White Lead, Soap, and many other curious matters, price 1 s. 6 d. Sold at the *Ring in Little Britain*.

Thus Reader, have I made good my Promise in this crouded Work, full of Variety, and must now proceed to the Second Part.



THE SECOND PART.

C H A P. I.

To make Glass of Crystal of all the several Colours, viz. Green, Gold, Yellow, Black, Garnet, Sapphire, Ruby, Amethyst, Crystal, Pearl, Turquoise, and many other Oriental Colours.

The Foundation of the Work for Glass-making.

THE first Thing to be consider'd in this, is the Pulverine or *Rocetta*, which is the Ashes of a certain Herb growing in the *Levant* and *Syria*, making a whiter Salt than *Barilla* of *Spain*, and more excellent for fair and beautiful Crystals.

To extract this Salt, powder the Ashes and sift 'em very fine; to know how these Ashes prove, touch 'em with your Tongue, to try the saltness, or make an Essay in a Melting-pot, to know if they bear much Sand (or Tarso) a thing useful in this Art. Having try'd your Ashes, set up Coppers with their Furnaces in imitation of those us'd in Dying, greater or lesser as the quantity of Salt intended requires; fill 'em with fair Water, let your Fuel be dry Wood, and when the Water boils put in the Pulverine, a quantity in proportion to your Water, and boil it with a continued

Fire till a third part of the Water be consumed, mixing them well at bottom with a Scummer, that the Pulverine may well incorporate with the Water, and all its Salt be extracted; then put in other fair Water, and boil it till half be consumed, and so there will be a Lee impregnated with the Salt. To encrease the quantity of Salt and have it whiter, boil in the Water, before you put in the Pulverine, 12 pound of Copper of Tartar of red Wine calcin'd to a black colour only.

When two thirds of the Water is consum'd in boiling slacken the Fire, season earthen Pans with fair Water six days, then put the Lees into them with large brass Ladles, as also the Ice you find in the Coppers, with the Ashes; having fill'd the Pans, let 'em stand ten days, and in that time the Ashes will be at bottom, and the Ice remain very clear, which must be taken gently off with brass Ladles, that the bottom rise not; put it in other Pans, and let it stand two days, that being purged from Settling, it may be more clear and limpid, which will be effectual when thrice settled; and so work till you have Materials sufficient.

To strein the Lees and extract the Salt, in the first place let the Coppers be well wash'd with clear Water, so fill 'em with the refined Lees: let 'em boil gently, and put in the Ice, till it thicken and shoot its Salt, which usually happens about the beginning of 24 hours, so that on the top Salt will appear like white Threads or Spiders Webs; then sink a Scummer full of holes to the bottom of the Copper, and the Salt will fall upon it, and now and then take it out, suffering the Lees to run well off, but put the Salt in Tubs or earthen Pans, that the Ice may the better drain; save the Liquor that drains from it, to put into the Copper,

per, and dry the Salt; continue doing so till all the Salt be got out of the Copper; when the Salt is well dry'd put it into wooden Vessels, which will suck up the moisture. Thus from 300 weight of Ashes 80 or 90 pound of Salt may be got proper for this use; which being well dry'd, beat it, and put it into the Calcar (a sort of calcining Furnace) to dry with a gentle heat: Rake it over with an Iron Rake when 'tis dry, take it out, pound it well, and sift it, that the biggest pieces exceed not Grains of Corn; when 'tis thus order'd it must be kept clean from Dust or other Annoyances, to make Frit of Crystal, which is made in the following manner.

To make Frit of Crystal, or Bollito.

To make this, if you would have your Crystal fair, procure the finest Tarso, (a kind of hard and white Marble found in *Tuscany*) beat it small with an Iron Pestle in a Mortar, sift it, and put 200 weight of it to about 130 of Pulverine Salt so order'd; mix 'em very well together, then put 'em into a Calcar at first well heated for an hour, make a temperate Fire, and rake the Frit with an Iron Rake, that it may be well incorporated and calcin'd, then encrease the Fire, raking the Frit for five hours, and raising the Fire by degrees to a strong one; when 'tis sufficiently done, take out the Frit, lay it on a Floor, cover it with a Cloth, and keeping all Dust from it, it will be as white as Snow: Keep it then in a dry place, so that the Salt relent not, for if it doth, and run from the Tarso, 'twill not vitrifie: If it stand 3 or 4 months it will be the better to put in Pots, soon be clear, and fit to prepare a curious Crystal Glass.

To make Common Glass.

Frit of Pulverine makes an excellent, white, and common fair Glass. Frit of Rochetta makes that between Crystal and common Glass; as much Maganese well prepar'd must be used in common as Crystal Glass; and these, that you may have 'em the fairer, must once at least be put into Water, and if you'd have 'em very fair, oftener, as you see convenient, so you may work 'em into what Vessels you please. To make 'em whiter, let 'em be well calcin'd, that there may be the fewer Blisters; and particularly observe, that if to each of them you put upon the Frit the quantity of 12 pound of Salt of Tartar purified to 100 pound of Frit, the Glass will be more pliable to work, and fairer than ordinary. Herein note, that you put in the Salt of Tartar when the Frit is made, then mix the Sand or Tarso with the Rochetta or Pulverine well sifted, and make them of a Frit, as before.

How to purifie Salt of Tartar for this Work.

Take the lumps of Tartar of red Wine, calcine it in earthen Pots till it becomes black, its Oily quality consum'd, and it begins to turn white, but let it not come to perfect whiteness, because then its Salt will be naught; put it then into earthen Pans fill'd with fair Water heated also in glazed earthen Pots; make it boil over a gentle Fire, till a fourth part of the Water be evaporated; then take it off to cool, and when the water is become clear, decant it into other Vessels, so it will be a strong Ice; then put into the Pans more common water upon the remainder of the Tartar, and let 'em boil, as before, till the water becomes more brackish. This done, filtre these Waters, and impregnate with Salt; put the filtered

fred Ice into Glass Bodies, to evaporate in the Ashes of the Furnace at a gentle heat, and in the bottom a white Salt will remain, which dissolve in warm Water, and when 'tis two days settled, evaporate it at a gentle heat in glass Bodies, and there will be a whiter Salt remain at the bottom than the former; dissolve this again, and filtre and evaporate it after two days settling, as before. Do thus four times, and the Salt will be as white as Snow; which Salt, mixt with Rochetta and Pulverine, and a sufficient quantity of Tarso, will make an excellent Frit, that (put in the Pot) yields Crystalline and common Glass much fairer than what is made without this Salt of Tartar.

Having given you the Groundwork for white Glass the best way, I come now to revive that excellent Art

Of colouring Glass, and first a curious Green:

To a Pot of ten pound of the Metal of white Glass put half of Crystalline several times thro' Water, and the other half common white Metal of Pulverine. Take four pound of the common Frit of Pulverine, with this mix three pound of Red Lead, unite 'em well together, and put 'em into a Pot, and in a few hours they'll be purified, then cast the Metal into Water, take out the Lead, and return the Metal into the Pot; let it purifie 24 hours, at which time if you put in the Colour, made chymically with the Pouders of the *Caput Mortuum*, of the Spirit of *Vitriolum Veneris*, adding a small quantity of *Crocus Martis*, the Colour will be perfected, and there arise a pleasant Green resembling the Oriental Emerald.

Another curious Green, fair and shining.

To do this, put Crystalline into a Pot that has not had Maganese in it, and which has once or twice held water, to take out the saltness, and to it put half as much common or white Metal made of Pulverine, at several times, and when 'tis well mix'd and purified, put to every 100 pound two pound and a half of thrice-calcin'd Brass made in the Arches of the Furnace, with Brass Plates, and with this mix two ounces of calcin'd *Crocus Martis*, calcin'd with Brimstone and reverberated. These Pouders being well mingled, put them to the Metal, and if it has any blueness add a little more *Crocus Martis*, and 'twill take it away; work it well with the Metal according to Art, and it will be a wonderful Green of the Burnet.

A fair Sea-Green in a Crystal.

Put about sixty pound of Crystal Frit in a Pot well scumm'd, and not cast into the water; and to the Metal put a pound and half of the Scales of Brass that come off by hammering the Fire; when you have well calcin'd 'em, four ounces of well prepar'd Zaffer: The Pouders being well mix'd together before put into the Crystal. put 'em in at four times, mixing the Pouders with the Metal two hours, and then give it another mixture, as is usual in this Work, making proof of it till the Colour has taken. With half Crystal and half Rochetta, a beautiful Sea-green may be thus made.

A Cheap Green.

Take the like quantity of Zaffer and Brass prepar'd as before, put 'em in the same manner and form to Rochetta of the *Levant*, as also that of *Spain*, neither of 'em having had any Maganese, but been well scumm'd, and not pass'd thro' Water,

ter, using the Rules as before in the green Crystal, by this means it will receive a very fair colour, and be afforded at a very cheap rate.

A Gold-Yellow in Glass.

To do this, take Rochetta Frit one part, Crystal Frit two parts, being both made with Tarso, mix 'em together, to every hundred weight take of Tartar in lumps, beaten and sifted fine with Maganese, each one pound; mix the Pouders by themselves first, then with the Frit, so put 'em into the Furnace, letting 'em stand four days at an ordinary Fire, by reason they will rise much; the Metal being purified, and the Colour well mix'd with it, make it into what you think convenient for your use. In this case you must observe to put your Colours in at several times, that the Colour may take the better; you may heighten or lessen the Colour the more or less you put in; but if you'd have a fair good Colour, let the Frit be all Crystal.

Glass, a Garnet Colour.

Take a small quantity of Rochetta and Crystal Frit, to every hundred add one pound of Maganese, and an ounce of prepar'd Zaffer; mix 'em well together before you put 'em to the Frit; put 'em into the Pot by degrees, and at the end of 24 hours, when 'tis well mix'd and of a pure colour, work it into form.

To make Glass of a Sapphire Colour.

Put a pound of Zaffer to each hundred weight of Rochetta Frit; let the Zaffer be well prepared, and to every pound of it add an ounce of Maganese; mix the Pouders well together by themselves, and then with the Frit; put 'em so mix'd into a Furnace, there melt and purifie 'em,
and

and when pure and well colour'd, work it; so the Colour will be fine and durable.

To make Glass the Colour of Amethyst.

Take Cryстал Frit made of the finest Tarso, Maganese well prepar'd a pound, Zaffer done the like one ounce and a half; first mix the Pouders well together by themselves, then with the Frit, not with the Metal in the Pot. The proportion is a pound of Frit to an ounce of Pouders. When 'tis pure colour'd work it as you please.

A Sapphire Colour, very fair.

Instead of Rochetta take Cryстал Frit, add the same quantity of Pouders as to the other Sapphire, and order it the same way, and you'll have a fair shining Sapphire-colour'd Glass.

To make Glass a very curious Black.

To do this, take the Frit of Cryстал and Pulverine twenty pound each, Calx of Tin and Lead four pound; mix 'em well together, put 'em in a Pot into a Furnace well heated; the Metal being pure, take Steel well calcin'd, and pouders Scales of Iron falling from a Smith's Anvil, each an equal quantity; pouders and mix 'em, and put six ounces of this to the Metal, letting them boil stoutly, often stirring it; let it settle 12 hours, and then work it, and it will be a fine Velvet Black, fit for all Devices that require it.

To make Glass another fine Black.

Take of Rochetta Frit about two hundred pound, to this put two pound of Tartar, and six of Maganese, both pouders and well mixt, then put 'em leisurely into the Furnace; when they are melted and purified, which will be at the end
of

of four days, mix and wash the Metal, and this makes a very curious Black.

To make Glass a very deep Red.

Take 22 pound of Cryſtal Frit, a pound of broken pieces of white Glaſs, and two pound of calcin'd Tin; mix 'em together and put 'em into a Pot to run and purifie, and when they are melted take calcin'd Steel, Scales of Iron falling from the Anvil, of each a like quantity; grind 'em together, and when the Metal is purified leiſurely put an ounce of theſe to it, ſo mix 'em well, and let 'em incorporate, which they'll eaſily do in five or ſix hours; but beware you put not in too much Powder, for that will make the Metal black, and it ought to be tranſparent, and not opacous; of an obſcure Yellow. When you find it ſo, forbear putting in any more Powder, but put in three quarters of an ounce of Braſs calcin'd to redneſs; let it be well ground, and in 3 or 4 times uſing it will be a Blood-red, for which reaſon make frequent Eſſays to try the goodneſs of the Colour; take it in the nick, or it loſes its colour and turns black. That it may not do ſo, leave the Mouth of the Pot open. Let it not ſtand above ten hours in the Furnace, ſuffering it to cool as little as poſſible. If you perceive the Colour fade (as ſometimes it does) put in ſome Scales of Iron to enliven it. As this is one of the nicest Colours to be made, be careful in every thing, eſpecially in adding Steel and Scales, alſo in working it.

To make a Milk-white Glaſs call'd Lattimo.

To do this curiouſly take Cryſtal Frit twelve pound, calcin'd Tin and Lead two pound, mix them together, and take Maganeſe prepar'd half an ounce; incorporate 'em well, ſo put 'em into

a Pot heated; let 'em stand 12 hours till well melted, and it becomes a fair White, very pleasant to the Eye.

Another.

To do this, take about four hundred weight of Crystal Frit, sixty pound of Tin calcin'd, two pound and half of Maganese prepar'd; powder 'em and mix 'em with the Frit, then set 'em in a Pot in the Furnace, letting 'em refine 18 hours, and they will be purified; then cast it into Water, purifie it again in the Furnace, so make an Essay; if it be too clear, add fifteen pound more calcin'd Tin; mix it well with the Metal, and in 24 hours it will become exceeding White, so work it. You may make this in like manner with Rochetta Frit, but not so white.

To make Glass Peach-colour in White.

Work this as the fair Milk-white or *Lattimo*, only with a little more Maganese, and it will be of a Peach-bloom Colour; but take the exact time to work it when in full colour, lest it loses it.

To make Marble-colour'd Glass.

This is easily done, observing well the Rule, which is, to put Crystal Frit in a Pot, and when it is melted, before purified, work it, and it produces a fine Marble Colour.

To make Pearl-colour.

Melt and purifie Crystal, put to it at 3 or 4 times Tartar calcin'd to whiteness, or so often as on tryal you find a Crystal has took Pearl-colour. Work it off speedily, lest the Colour fades.

Frit of Natural Crystal, &c.

To make this you must have Natural Crystal, calcine it in a Crucible, extinguishing it 8 times
in

in fair Water, covering it so close that no Ashes or Dirt get in; when the Crystal is well calcin'd dry and grind it to a Poudre; mix this Poudre with Salt of Pulverine made in a glass Body, so make Frit with them, observing the Quantities, Rules, and Proportion of Maganese, as in other Frit; set it in the Furnace, and often throw it into Water to purifie it. Work it as other Crystal, and you'll make a curious Matter of it.

To make Glass Blue, or Turquois.

Take that Sea Salt call'd *Black* or *Gross Salt*, put it into the Calcar or Furnello till the moisture be evaporated, and it becomes white; beat it into a fine Poudre, put it into a Pot of Crystal Metal dy'd with the colour of Sea-green, made as I have directed; put in the calcin'd Salt by degrees, and mix it well with the Metal till the Sea-green loses its Transparency and takes Opacity; for the Salt once vitrified, makes the Metal lose its Transparency, giving it a paleness, by degrees encreasing to a Sky-colour, or that of a Turquois-stone: When it has taken this Colour, it must be speedily work'd, or the Salt will be lost by evaporation; and if the Colour be lost, you must begin your Work again with fresh calcin'd Salt. And now, before I go further in this Art, known to but few, for the better understanding of the Reader, I shall give a more particular account of Things useful in many Colours.

To prepare Zaffer.

Take this in gross pieces, let it stand 12 hours in the Furnace in earthen Pans, then put it into an Iron Ladle to be heat red hot in the Furnace, so taking it thence, sprinkle it with sharp Vinegar; being cold, grind it on a fine Porphyry-stone, so

so wash it in glaz'd earthen Vessels with Water warm'd, suffering the Zaffer to settle at bottom, then decant gently off, and you'll take aside the Dross, leaving the pure, and the Tincture remains in the bottom. Being thus prepar'd and purified, 'twill tinge more excellent than at first, making a limpid and clear Tincture, which well dry'd, may be kept in close Vessels for use.

To prepare a Maganese for colouring Glass.

Take that of *Piedmont*, as being the best of all others, put it into Iron Ladles, and in all the rest proceed as in the Zaffer.

To make Ferretto of Spain to colour Glass.

To do this, calcine Copper, that the Metal being open'd, may communicate its Tincture to the Glass; get thin Plates of Copper the bigness of a *Florentine*, and have one or more Geldsmiths Melting-pots; make a Layer of Brimstone powder'd in the bottom of one these, then a Layer of Plates, and over them another Layer of Pouder; in this order fill the Pot, which is otherwise said to make a SSS Cover; lute it well, and dry the Pot, then put it into an open Wind Furnace amidst burning Coals; give it a strong Fire for two hours, and when 'tis cold you will find the Copper calcin'd. This Copper beaten small and sears'd into fine Pouder, must be kept for use.

To prepare Crocus Martis for colouring Glass.

This is no other than subtilizing and calcining of Iron. To do it, take the Filings of Iron, or those of Steel, which are better, mix 'em with three parts of Pouder of Sulphur, put 'em into a Melting-pot, then into a Furnace to calcine, and burn

burn well off all the Brimstone, so let it stand four hours in burning Coals, then take and powder it; searse the Powder very fine and put it into a Crucible cover'd and luted at top, so set it in the Leer of the Furnace, near the Occhio or Cavelet fifteen days, or somewhat more, and it will be of a reddish colour inclining somewhat to Purple. Keep it in a close Vessel, to be used in Glass Colours, in which 'tis us'd with admirable Success.

To calcine Brass call'd Orpello, or Tremolante, making a curious Sea-green or Sky colour.

Take thin Brass and cut it in small pieces, put it into a Crucible cover'd and luted at top, set it in a fierce Fire, let it stand four days in a great (but not melting) Fire, for if it melt your labour is lost; in that time 'twill be very well calcin'd, so powder it in the most subtil manner, searse it, and there will be a black Powder, which spread on Tiles and keep in a Leer on burning Coals four days, near to the round hole; take away the Ashes that fall upon it, powder and searse it again, and so keep it close stopt for use. To know if it be well calcin'd, put it into Glass, and if it swells 'tis right, if not, 'tis not well calcin'd, or else 'tis overburnt, and then 'twill not colour well.

To calcine Brass another way to make a transparent Red.

Cut it small, as the former, and put it into a Melting-pot, with Layings of Powder of Brimstone, and Metal, as in Copper; first set it on kindled Coals, then put it into a strong Fire in
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the Furnace, to calcine for 24 hours; then powder and searce it, put it cover'd into the Furnace on Tiles of Earth, for twelve days, to reverberate; so powder, grind, and keep it for Use: Besides a Red, it contributes principally to the making a Yellow and Chalcedony.

A Red Colour from Brass.

Put small Pieces of it in the Arches of the Furnace, and let them be there close till they are well calcin'd, but in such a Fire as they may not melt; and when calcin'd, powder the Brass, and the Powder will be red and excellent in many Uses for colouring Glass. Brass thrice calcin'd, is likewise very excellent, and is order'd in the following manner.

Brass thrice calcin'd, to make a curious Colour in Glass.

Put this on the Leer, or into the Furnello of the Furnace, near to the Occhio, into Pans baked, or Earthen Tiles; calcine it four days, and you will have a Black Powder, sticking together, beat it fine and searce it; calcine it as before, but a day longer, and then it will not stick together, and be of a Ruffet Colour; and so the third time: But observe it be not too much nor too little calcin'd, for then it will not colour well; and to know when it is well, put it to purified Metal, it will make it boil and swell, and if it does not, it is too much or too little.

This makes a curious Sea-Green, and an Emerald Green. The Arabian Colour call'd Turquois, a curious Sky-Colour, with other Varieties. *Art's Treasure.*

C H A P. II.

To make Glass of Lead, of many Beautiful Colours, resembling those of Oriental Precious Stones, as Emeralds, Topaz, and others; and the Materials useful in the Work.

The Ground-work for making Glass of Lead.

THIS is a very curious Art, which but a few understand, especially as to the Colours; though it may be held the noblest and fairest of all other Glass, yet great Caution must be used in making it; for being well made, it imitates the true Oriental Gems, which cannot so well be done in Crystal, or any other Glass; yet you must use great Diligence in melting it, lest all sorts of Pots are broken in doing it, and so the Metal run in the Furnace; and the Business chiefly consists in rightly knowing how to calcine Lead, and to re-calcine it a second time; for the more it is calcin'd, the less it returns to Dead, and less endangers your Pots.

Observe also to cast the Metal into Water, and by that means separate the Metal from the Glass, even the last Grains of it, but it must be done by little and little, that the Separation may be made the better, for the least Lead remaining, breaks out the bottom of the Pot, and lets the Metal fall out; and farther observe, that the Pots and Lead must not have too much Heat in the Furnace, neither must the Metal be wrought too hot; and the Marble wherein it
is

is wrought must be of the hardest Stone, and be wetted, or else it will break and scale.

A curious way to calcine Lead.

At first calcine it in a Kiln, as Potters use, in a great quantity, for in two days they usually calcine three or four hundred weight. In calcining take particular care that the Kiln be not too hot, but so that it may keep the Lead in continual Infusion, otherways it will not be calcin'd. When 'tis well melted you will observe at the top a yellowish matter; then prepare to draw forward the calcin'd part with an Iron suitable for the purpose, ever spreading it in the internal Extremity of the Kiln's bottom, which ought to be of soft Stone that will bear the Fire, and the Kiln must have a declinative towards the Mouth. When 'tis calcin'd, it must be put and spread a second time in the Kiln, that so in a convenient Heat it may reverberate, keeping it stirring with the Iron for several hours, till it come in this second Calcination to a good Yellow, and be calcin'd; then finely searse it, and what passes not the Searse recalcine it with new Lead.

To make Glass of Lead.

Take fifteen pound of calcin'd Lead, Crystal Rochetta, or Pulverine Frit, according as you would make the Colours, twelve pound; mix them exceeding well, and put them into a Pot; let 'em stand ten hours, and then cast 'em into Water, for in that time they'l be well melted: Separate the Lead, and return the Metal into the Pot, which at the end of twelve hours will be fit to work.

How to work the Glass of Lead.

To work this into Vessels, it will be necessary before it is taken upon the Iron, to be a little raised in the Pot; so take it out, and suffer it to cool a little, then work it on the Marble, being clear at first; let the Stone be wet with cold Water, that the Glass may not draw away with it the Marble, and scale it, which without wetting it will, and so to the Damage of it, incorporate it into it self; therefore you must continually wet it whilst the Glass is wrought, otherwise, by the Marble sticking in it, the Fairness and Beauty will be taken from it; do thus as often as you take the Metal out of the Pot.

This sort of Glass is very tender, that if it be not cooled in the Furnace, and taken a little at a time, and held on the Irons, and the Marble continually wetted, it is next to an Impossibility to work it; which cause proceeds from the calcined Lead, that renders it so very tender; yet when well wrought, it is an excellent Glass.

To make Glass of Lead, of an Emerald Colour.

Take twenty Pound of the Frit of Pulverine, sixteen Pound of calcined Lead, sears'd both into two Pouders, first by themselves; and when well mixed together, put them into a Pot, not too hot, for eight or ten Hours, and then they will be melted; so cast them into Water, and separate the Lead and the Unstiffness which calcined Lead and Pulverine give it; and there will ensue a bright shining Colour, and in a few Hours it will run, and become very clear, then put into it Brass thrice calcin'd,

six Ounces, mixing with it a Penny Weight of *Crocus Martis*, made with Vinegar, put in at six times. This Mixture does always well, mixing the Glass at least every two or three Minutes; let it settle an Hour, then mix, and take an Essay thereof, when the Colour is apt; then incorporate eight Hours, and work it into Vessels, or other Devices.

Note, If you let it stand in a Pot when it hath received its Colour, till it hath consumed all the Dregs, and is perfectly refined, it will be so like the natural Emerald, that the Sight can hardly distinguish one from another.

Another Curious Green.

This is made in all respects as the foregoing Green, with this addition, *viz.* That there must here be six Ounces of *Caput Mortuum* of *Vitriolum Veneris*, instead of the Brass in the other.

This is the rarest Green that can be made any way whatsoever.

A Sky or Sea-green, in Glass of Lead.

Take sixteen Pound of the Frit of Crystal, ten Pound of calcined Lead, mix and searse them well together; set them in the Furnace twelve Hours, and the Stuff will be melted; then cast both it and the Pot into Water, to separate the Lead; then a second time let them stand eight Hours in the Furnace; again cast them into the Water, separate the Lead, and again put them into the Furnace, and in eight Hours more the Metal will be very clear; then take of Zaffer well prepared, a quarter of an Ounce, calcined Brass four Ounces, mix them well, and put them in at four Times, in four equal Quantities, and at the end of two Hours mix well

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well the Glass, and take an Essay of it; then let it stand ten Hours, in which time the Colour will be well incorporated, the Glass very well perfected, and be fit to be wrought in any Works.

A Topaz Colour in Glass of Lead.

Take fifteen Pound of Chrystal Frit, twelve Pound of calcined Lead, mix and searse them well together, and set them in the Furnace, but not too hot; at the end of eight Hours put them in Water, to separate the Lead from the Pot and Glass; repeat this twice, and add half Glass, of a Gold-Yellow Colour; let them incorporate and purify, and it will be of the Colour of an Oriental Topaz.

Garnet Colour on Glass of Lead.

Take twenty Pound of Chrystal Frit, and sixteen Pound of calcined Lead, searse and put them into a Pot, add to them of Maganese three Ounces, of Zaffer half an Ounce, both well prepared, and let them stand ten Hours, cast them into Water, and separate the Lead, then put them again into the Furnace, and let them purify ten Hours, so mix them, and make an Essay, and when it is perfected, and the Colour of a fair Garnet, work the Metal into what Form you think most convenient.

To make a Yellow Gold Colour on Glass of Lead.

Take calcined Lead, and Chrystal Frit, each sixteen Pound, mix and searse them, then add thrice calcined Brass six Ounces *Crocus Martis* made with Vinegar a Penny Weight; mix them well and put them into a Furnace, and let them stand twelve Hours; then cast them into Wa-

ter, to separate the Lead, and put them again into the Furnace, where let them stand other Twelve Hours, then the Metal will be clear; so mix them, and take an Essay; and if it appear Green, put in a little more *Crocus Martis*, which will take it away, and so it will become a fair yellow Gold Colour.

A Sapphire-coloured Glass of Lead.

Take of Chrystal Frit Fifteen Pound, calcined Lead Twelve Pound, searse and well mix them together, so add to them a Penny Weight of Maganese, and Two Ounces of Zaffer, both well prepared, and let them stand Twelve Hours in the Furnace; cast them into Water, and separate the Lead. Do the like a second time, and when the Colour takes, it will be that of Oriental Sapphire, very fair, with the mixture of a double Violet Colour.

To Colour Natural Chrystal of a Viper-Colour, without Melting.

Take Chrystal that is of a good Water, fine and clear, in several Pieces of different Bigness, yellow Orpiment, and crude *Mercury* in Pouders, of each Two Ounces, Sal. Armoniack one Ounce; let the Three last, in fine Pouders, be well mixed together, and put them in a Crucible that will well bear the Fire, and upon them the Chrystal in Pieces, so cover the Crucible with another, Mouth to Mouth, and well luted, and when they are dry, set them on Coals, which kindle by little and little, and being fired suffer them to flame of themselves, and then they will smoak much, therefore you must do it in a large Chimney, to avoid the Fumes, which are hurtful, and when the Fumes are evaporated,

evaporated, let the Chrystal stand till cold, by the going out of the Fire of its own accord, so unlute the Crucibles, and take out the Chrystal, and those on the top will be tinged with a curious Yellow, a Red Ruby and Balas Colour, with fair Spots, and those at the bottom into the Wavy Colour of a Viper, and will endure a good polishing, and contain a curious Lustre.

A curious Lapis Lazuli Colour.

To do this, melt the most tender white Chrystal and *Lattimo* in a Pot, and when well melted, put in Blue Smalt, by little and little, and when the Colour comes well, let it stand in the Fire two Hours; then make an Essay of it, and when it is Proof, let it stand Twelve Hours; mix and work it, and if the Metal rise, put in a Piece of Leaf Gold, and it will allay it, and so you will have the natural Colour of *Lapis Lazuli*.

To Colour Natural Chrystal like Rubies, Balas,
Topaz, Gizafole, Opal, &c.

To do this, take Orpiment of a Yellow Orange Tawny, well powder'd Chrystalline, white Arsnick, crude Antimony, and Sal-Armoniack, of each Two Ounces, powder and mix them very well, and put them into a large Crucible, and upon them Pieces of Chrystal, of a fair Water, without any Spots. Let the Chrystal be somewhat large, and fill the Crucible, and lute on it another, Mouth to Mouth, making a Hole at the bottom of the uppermost as big as a Straw, that the Air may get in to evaporate the Fumes. When the lute is dry set them in the Coals, so that all the lowermost and the one half of the uppermost may

be buried in the Coals; so kindle the Fire by degrees, and do as in preparing the other Chrystal, to avoid the Fumes, which will be long; therefore keep a constant Fire, very strong, and keep out all cold Air, lest the Chrystal being brittle, break; and so well cooled as the other, the Colour will appear.

To make Glass of Lead, as red as Blood.

To do this, put into a Pot six Pound of Glass of Lead, ten Pound of Chrystal Frit, and when purified, cast them into Water; then return them into the Pot, and when they are well refined, put in five or six Ounces of Copper calcined to a Red Pouders, and let them boil up and refine; after that put in a little Red Tartar in Pouders, and let the Metal boil up again, and well incorporate, and take an Essay, and if the Colour be not come up to a height, put it again to anneal, till it comes to its Colour.

To recover the faded Colour of natural Turquois.

Put it into a Glass, and pour on it the Oil of Sweet Almonds, keep it warm, on temperate Ashes, and in two Days the natural Colour will return very beautiful.

To make Vitriolum Veneris, used in Colouring Glass, and in some places mentioned.

Set covered Crucibles in an open Wind-Furnace, with burning Coals; let them stand two Hours, then suffer the Furnace to cool of itself, so take out the Crucibles, and you will find the Copper you have put in calcined to a blackish or dark Colour, or obscure Purple, which powdered and well seared, put into an Earthen

Earthen Vessel that will bear the Fire; set that in an open wind-Furnace, on cross Iron Bars, fill the Pans with lighted Coals, put in the calcin'd Copper, add to each pound six ounces of Brimstone powder'd, and when the Brimstone begins to flame keep it continually stirring till the Brimstone is consum'd and the Smoak cease, then take it out hot; do this by renewing three times, and you'll have a curious Powder fit for your purpose; for being infus'd in Water, in a Retort, for many hours, and well luted, the curious settling being separated, 'tis excellent to mix (when dry) with Zaffer; and put to Cryстал Frit, maketh a marvellous Sea-green, and in many other cases an Azure, or curious Sky-colour.

C H A P. III.

To make curious Enamels of divers Colours, after the best manner, for Gold and Silver Works, and other Metals. To fix Sulphur, extract Animæ Saturni, &c.

The Groundwork of Enamels.

TAKE thirty pound of fine Lead, thirty-three pound of fine Tin, searse them when they are well calcin'd in a Kiln, boil this Calx a little in clean Water in earthen Vessels, and when you take it off decant the Water by inclination, and in it will be the finer part of the Calx; put fresh Water on the remainder, boil and decant it as before, as long as the Water carries off any Calx, and then recalcine what remains gross, and draw off the most subtil part of it, as before; after that evaporate the Water that carried off the finer Calx over a gentle Fire, that the Calx may not fly out with it, but remain in the bottom; then

take Crystal Frit made with Tarso finely ground, and of this Calx, of each fifty pound, white Salt of Tartar eight ounces, powder, searse, and well mix 'em; put the Composition into a new earth Pot, giving it a Fire for ten hours, then powder it, keeping it close cover'd in a dry place. Of these Materials all the Ground of Enamels are made, of what Colour soever.

Materials or Utensils for this Work.

In this curious Work, which is in high esteem and very profitable, it will not be amiss to set down the Materials or Utensils to be us'd; and therefore, *1st*, Let the Pot wherein you make the Enamels be well glaz'd with white Glass, and that it bear the Fire well. *2^{dly}*, Incorporate, and mix well the Stuff and Colour of the Enamels. *3^{dly}*, When it comes to be refin'd, and the Colour proves good, and all well incorporated, take it off the Fire with a pair of Tongs for the Workman's use.

The Way of making Enamel.

Powder, searse, and grind well the Colours; having mixt 'em together as occasion requires, then with the Stuff of the Enamel set 'em in Pots in the Furnace; being melted and incorporated, cast 'em into Water, and when dry set 'em again in the Furnace to melt, which will be soon, so make an Essay, and if the Colour be too high, take out some of it, and add more of the Stuff of the Enamel; if too light, add more of the Colour, till you bring it to a due proportion.

White Enamel.

Take six pound of the Stuff for Enamel, 48 grains of Maganese, cast it thrice into Water; being refined, melt it, and 'twill produce a white Enamel.

Turquois-colour'd Enamel.

Take six Pound of the Stuff of Enamel, melt, refine, and cast it into Water; then again set it in the Furnace, and when it is melted, and well refined, put in Three Ounces of calcined Brass, at thrice, ninety six Grains of prepared Zaffer, and Forty Eight of Maganese likewise prepared; mix these well every time, and let them incorporate; make a Proof with your Eye, as to the Colour, and when you find it Right, take it out, and keep it for use.

A Green Enamel

Take Four Pound of the Stuff for Enamels, place it in the Furnace, and in Ten or Twelve Hours it will be melted and refined, so cast it into Water and place it again in the Furnace in its own Pot, and being refined, put in Two Ounces of Brass thrice calcined, mixed with Two Ounces of Scales of Iron well ground, put these in at Three times, mixing and incorporating them well every time, and so work it up to a pure Colour, and take it from the Fire, &c.

To make Violet-coloured Enamel.

Take six Pound of the finest Enamel Stuff, three Ounces of Maganese well prepared, forty eight Grains of thrice calcined Brass, mix the Pouders very well together, and then do the like with the Enamel Stuff; put 'em into the Furnace, cast them into Water, and being dry, put them again into the Furnace, and when the Stuff is refined and well coloured, make it up for use.

To make a Sky-colour'd Enamel.

Take four Pound of Enamel Stuff, Brass of Sky-Colour and Sea-Green each two Ounces, prepared Zaffer forty eight Grains, and mix

them well; then in all things else use them as the former.

To make Purplish Enamel.

Take six Pound of the Stuff for Enamels, two ounces of Maganese prepared, of Brass thrice calcined six Ounces, mix them very well together, set them in the Furnace, and in all things else use or order them as in t'other.

To make Gold Colour. or Yellow Enamel.

To make this, take six Pound of Enamel Stuff, three Ounces of Tartar, seventy two Grains of Maganese prepared, grind and mix the Pouders well together, and after that, with the Stuff of the Enamel, melt and order them as other Enamels, and it will be of a fair Golden Yellow, proper to Enamel on Gold; but it will not shew so well there, unless it be worked on with other Enamels, that may make a pleasing Variety of Colours.

A Black Enamel to make it.

Take four Pound of the Enamel Stuff, Maganese and Zaffer prepared, each two Ounces, mix them well together, and then incorporate them well with the Stuff; put the Pot, with these Materials, into the Furnace; let the Pot be large, and when they are melted and refined, cast them into the Water; then put them into the Furnace again, and they will quickly refine, and become of a curious Velvet-Black

Another curious Black Enamel.

Take four Pound of the Stuff of Tartar, four Ounces, well prepared Maganese two Ounces, mix and grind them well, and then mix them well with the Enamel Stuff, and in melting and refining, use them as other Enamels.

A Red Enamel.

Take of Enamel Stuff four Pound, put to it
two

two Ounces of Maganese prepared; mix them well, and set them in the Furnace, in a large Pot, and being melted, and refined, cast it in Water, melt, refine, &c. again.

To make an Azure Enamel,

Take four Pound of Enamel Stuff, prepared Zaffer two Ounces, mix with it at first, of thrice calcined Brass forty eight Grains, and when the Pouders are well mixed, mix them with the Stuff, and so order them in melting and purifying as other Enamels, the melting, &c. being all one in every case.

Another curious Green Enamel.

Take six Pound of Stuff, mix with it three Ounces of Ferretto of Spain, well ground, and Forty eight Grains of *Crocus Martis*, and being well mixed, melt and purifie them as the former Enamels.

Another curious Green Enamel.

Take Four Pound of Enamel Stuff, refine it well in a Pot, in the Furnace, then cast it into Water, and put it into the Pot and Furnace again, so refine it; then put in at Three times thrice calcined Brass Two Ounces, of *Crocus Martis* made with Vinegar, Forty eight Grains; then melt and refine them again, with incorporating the Pouders.

Another Black Enamel.

Take Six pound of Enamel Stuff, prepared Zaffer, *Crocus Martis* made with Vinegar, and of Ferretto of Spain each Two Ounces, grind and mix the Ponders well together, and then incorporate them with the Stuff, and order them in the Fire and Water, according to the usual Rule.

A fair Red to Enamel Gold.

Take Chrystal Frit, made of Salt of Pulverine,

rine Ten Pound, white Tarso finely ground, Eight Pound, make a substantial Ssuff with this Frit and Water, rowl it into thin Wafers, put them into an Earthen Pan, into a little Furnace, made in the Fashion of Calcar, that they may be calcined about Ten Hours with a good Fire, and for Defect thereof, put them in the Furnace, near the Occhio, Three or Four Days, till they be well calcined; take prepared calcined Lead, and Tin, and of Tartar Wine calcined, each Two pound, mix these well together; put them in a well glazed Pot, glazed with white Glass, and when melted, and pretty well refined, cast the Metal into Water; so melt and refine it again; then put in the red Pouders of calcined Copper 12 Ounces, and when the Colour is well purified, add *Crocus Martis* made with *Aquafortis*, put it in by degrees, and give it leave to settle six Hours, make a Proof to see if the Colour is good, if not, heighten it with more *Crocus Martis*.

To fix Sulphur for this Work.

Boil the Flour of Brimstone an hour in common Oil, and being taken off the Fire, cast upon it strong Vinegar, and the Sulphur of a sudden will sink to the bottom, and the Oil will be on the top of the Vinegar, then empty the Oil and Vinegar; then put fresh Oil on the Sulphur; repeat this thrice, and then you will have a fixed Sulphur proper for the Work.

To extract Anima Saturni, useful in Enamel.

Put well ground Litharge into an Earthen glazed Pan, pour distilled Vinegar upon it, let it be four Fingers above it, and let it stand till the Vinegar is of a milky Colour; then decant it off, and put fresh Vinegar upon the Litharge; do this till the Vinegar becomes no more colour-
ed,

ed, then let the coloured Vinegar stand in glazed Pans, that the milky Substance of the Litharge may sink to the bottom; then decant off the clear Vinegar, and the remaining milky Substance is the *Anima Saturni*: And if in this case the white Stuff precipitate not well, cast upon it cold Water, which usually makes it fall to the bottom, and when it does not precipitate, evaporate the Water and Vinegar.

C H A P. IV.

The Art of making Calcedony like Jasper, Agates, and other lucid Stones, with their Clouds, Shadows, Spots, Waveings, and many other curious Embellishments, and to prepare the Materials useful in the Work.

TO make curious Waveings, and other mixtures of Colours, that surpass the Workings of Nature in Calcedony, &c. I shall lay down such perfect Rules as have not hitherto been distinctly known but to very few: And,

1. Put two Pound of *Aquafortis* into a Glass Body, not very large, but with a long Neck, and four Ounces of fine Silver, in fine small Pieces very thin, set them in warm Water or near the Fire, and as soon as the *Aquafortis* heats, it will work and dissolve the Silver; then take a Pound of *Aquafortis*, and in it dissolve six Ounces of Quick-Silver; mix these two Waters together in a greater Body, and pour them on six Ounces of *Sal Armoniack*: Let it dissolve at a gentle Heat, then put into the Glass one Ounce of Zaffer, and half an Ounce of Maganese, all well prepar'd. } also half an Ounce.

Ounce of *Ferreto* of *Spain*, and a quarter of an Ounce of *Crocus Martis*, calcined with Brimstone; also thrice calcined Copper, Blue Smalt, and red Lead, each half an Ounce, let them be finely powdered, and put one after another into the Body, which stir so gently that the *Fortis* may be incorporated with them, and for ten Days keep the Body close stopped, every Day shaking it divers times; and so being well opened, put it into a Furnace on Sand, and make such a temperate Heat, that in twenty four Hours all the *Aquafortis* may be evaporated; then in the bottom there will remain a Lion Colour, which being reduced to fine Powder, keep it in a strong Glass Vessel.

When you prepare to make a Calcedony, put into a Pot broken Crystal made into a clear Metal, and white Glass and Chrystalline which has been used, for with such Frit as has not been wrought it cannot be made; for the Colours stick not to it, but are consum'd by the Frit. To every Pot of twenty Pound of Glass, you must put two, or two Ounces and a half of this Powder, and sometimes three Ounces; put it in at thrice, that it may the better mix and imbody; and in this doing certain blue Fumes arise, and when it mixes, let your Glass stand about an Hour, then put in another Mixture, and let it stand twenty four Hours, so it will be well mixed.

This done, essay it, and it will have a yellowish Azure Colour; this Proof many times returned into the Furnace, and taken when it begins to cool, will shew divers wavey and very fair Colours. After this, take eight Ounces of Tartar, Soot of the Chimbley well vitrified, *Crocus Martis* calcined with Brimstone half an Ounce, put it on by degrees, mixed in fine Powder, at six times; taking

ing a little Interval between each putting in, mixing it with the Glass, so that it may be well incorporated, and when all the Powder is in, let the Metal boil and purify twenty four Hours: Make of it a little Glass Body, which put in the Furnace many times; then try if it be enough, and there be Blue Toys on the out-side, Sea-Green, Red, Yellow, and all Colours with Toys, and that it is illustrated with Waves, such as Calcedony, Jaspers, or oriental Agates have; and that to the Sight, the Body kept within, appears red as Fire.

When this Body is made and perfected, you may work it into Vessels, variegated and new made, for they do not rise well; but he that works it must observe to pitch off well the Glass, and anneal it sufficiently, that it may make Waves and Toys of the fairest Colour; and afterwards you may work it at the Wheel, for it takes polishing and a very fine Lustre, as Jewels.

If it happens, that the Colour fades, and the Glass becomes transparent, then leave off working, and put to it new Tartar calcined, Soot and *Crocus Martis*; for thus, as before, it takes a Body and Opacousness, and the Colour by that means will appear; so let it purifie many Hours, that as it is usual, the Powder newly put in, may be incorporated, then work it.

Another curious way to make Calcedony, &c.

Dissolve Three Ounces of fine Silver in a Pound of *Aqua-fortis*, cut small and thin, in a glass Body, and so set it aside.

In the next place, put a Pound of *Aqua-fortis* in another Glass and dissolve in it Five Ounces of well purified Mercury, and close the Body well.

Put another Pound of *Aqua-fortis* into another little Glass wherein is dissolved two Ounces

ces of *Sal Armoniack*, then put in *Crocus Martis* made with *Aqua-fortis*, *Ferretto* of Spain, Copper calcined into red Pouder, and Brass calcined with Sulphur, of each half an Ounce; grind and well Pouder these materials by themselves, and put them in one by one into the Body by degrees with leisure, because they all of them arise much.

In another little Glass Body let there be a Pound of *Aqua-fortis*, dissolve in it an Ounce of *Sal Armoniack*, *Vitriol* purified, crude Antimony powdered, Azure, or blue Smalt, of each half an Ounce, red Lead an Ounce, grind them well and set them by in a Vessel.

In another Glass Body, dissolve in a Pound of *Aqua-fortis* Two Ounces of *Sal-Armoniack*, add an Ounce of prepared Zaffer, and a quarter of an Ounce of prepared Maganese; of Cinnabar an Ounce, and half an Ounce of thrice calcined Copper, put them warily in, well powdered, every one by its self, that you may avoid the Fumes that will arise.

In another Glass put Two Ounces of *Sal-Armoniack* to a Pound of *Aqua-fortis*, then add Verdigrease, Ceruse, red Lake, and Scales of Iron, each half an Ounce, let all these Bodies stand Twelve Days, shaking every one of them Six times every Day, so the *Fortis* will penetrate and subtilize the Metal and Ingredients, the better to communicate the Tincture of the Colour to the Glass.

When this Work is thus far brought to pass, take a great Glass Body well luted at the bottom, and empty into it all the Materials of the other little Bodies by degrees, that they may not make the Glass crack or run out in this great Body; so mix the Waters, that the Materials may be well incorporated, and set it in the Ashes at a
very

very gentle Heat, for too much Heat wastes the pouders, so that the *Fortis* being evaporated, there will remain a reddish Powder at the bottom, which keep close in a Glass Vessel for Use

When you design to use it, put it into the Metal of broken pieces of Glass that have been used, doing now as in the former, giving the Metal the same quantity of Time, and use the like distance; then add the Body of burnt Tartar, Soot of the Chimbley vitrified, and *Crocus Martis* made with Vinegar, suffer them then to settle Twenty four Hours and work it in all respects as the former, and it will produce Wonders.

To make divers Things useful in this Work; and first to purify Vitriol to make strong Aquafortis.

To do this, take the best Vitriol, and dissolve it in common warm Water, let it stand three Days till it is impregnated with Salt; filtre and evaporate it in Glass Bodies till two Thirds of the Water is consumed; put the remainder into earthen glazed Vessels, set them twelve Hours in a cold place, and the *Vitriol* will shoot into pointed pieces, appearing like natural Chrystal of a fair Emerald Colour. Let this *Vitriol* be dissolved again, do as before, and thrice repeat it at each dissolving; there will remain at the bottom a yellowish Substance, which is unprofitable Sulphur, and must be removed.

At the third time you will find the *Vitriol* so purified, that it will make a strong *Aqua fortis*, particularly if the Nitre be well refined.

A good way to burn Tartar.

Take Tartar of Red Wine, in great Pieces full of Spots, put it into new Earthen Pots, let it burn till it smoaks no more, in a pretty good Fire, and being calcined, and in Lumps of purplish Colour, it is well calcined, and prepared
for

for use. *Aqua-Regis*, how to make it for this work.

To every Pound of *Aqua-fortis*, made as before, put into a Glass Body two Ounces of *Sal-Armoniack* well poudered, set it in an Earthen Vessel of warm Water, often stirring the *Aqua-fortis*, which having dissolved the *Sal-Armoniack*, will be tinged with a yellow Colour, then put in more *Sal-Armoniack* whilst the *Fortis* will dissolve no more; then let it have a little settling, and when it is clear, decant it off very leisurely, and the unprofitable Dross of the *Armoniack* will remain in the bottom, and this *Aqua-Regis* will be of force sufficient to dissolve Gold and other Metals, but it will not do the like by Silver.

C H A P. V.

To prepare Materials, and make artificial Precious Stones in imitation of the true ones; as Topaz, Emeralds, Chrysolites, Garnet, and other oriental Stones, of a very curious Lustre, differing from the true ones only in hardness, as being of equal Beauty; and to colour Balls or Globes of Glass within side, &c.

The Ground of this Work, in preparing Natural Crystal.

TAKE the clearest Crystal you can get, free from Spot, in pieces put the pieces in Crucibles covered at the top and set them in hot burning Coals, and when thoroughly heated, put them into a large Pan of cold Water, and being cold, dry and re-calcine it; throw it into
Water

Water ; and so do successively twelve times, keeping all Ashes and Filth out of the Crucible, and being sufficiently calcined, grind it to an impalpable Powder, as fine as Meal, on a Porphiry Stone, with a Muller of the same grind about a Spoonful at a time, and often searse it, till no roughness remains to be felt in the Powder, lest it make the Work dirty or imperfect ; and this is the Ground-work to mix with Colours for making artificial Jewels of Pafte, as will appear hereafter.

Materials useful in this Work.

Observe to lute well the Pots wherein the Chryftal is calcined, and the Paftes are baked, with good dry lute, before you either calcine or bake ; and be sure to take pots that will well endure the Fire, and in all respects keep a just Proportion in the Dose of the Ingredients.

Always observe, before you bake the Ingredients, to mix them very well, and if it fail to be thoroughly baked at first you must do it again in a Potters Furnace ; and break not the Pot till it is sufficiently done, for if you do, it will be full of Blisters, and foul.

Observe always to leave a Vacancy of a Finger's thickness on the top of the Pot, particularly where it is held to swell much ; for that you must put it in with Care and Leisure to prevent the Materials running into the Fire ; or if it stick to the Cover, the Colour will be foul. Having given you these Rules or Directions, I now proceed to the making several sorts of artificial Jewels.

To Imitate Topaz.

Take two Ounces of prepared Chryftal, seven Ounces of the ordinary *Minium*, mix and bake them according to Art, for a marvellus Oriental Topaz Colour ; with which you may work what Works you please. A

A fair Emerald imitated.

Take two Ounces of prepared Chryſtal, fix Ounces of ordinary *Minium*, mix theſe extreamly well together, adding eighty Grains of fine Verdigreafe well ground; mix and bake them to work a fair Emerald.

To make a deep Emerald Colour.

To do this, take two Ounces of prepared Chryſtal, fix Ounces and a half of common Red Lead, mix them, and add of Verdigreafe about three Penny Weight, and thirteen Grains of *Crocus Martis* made with Vinegar, ten Grains; mix them exceeding well together, and work it fit for baking: And to ſee when this, or other Coloured Paſtes are baked enough, purified and transparent, take off only the Cover made of Lute, and if it be ſo to the bottom it is enough, if not you muſt preſently re-lute, and bake it again, not breaking the Pot, for the Reaſons before mention'd; and let the Fire be continued with dry Wood twenty four Hours, and ſo you will have a marvellous Colour for ſmall Works, and to be ſet in Gold.

But obſerve this Emerald Paſte muſt have a more than ordinary baking, to conſume the Imperfection the Lead brings upon it; and though it is ſomewhat brittle, it is excellent, ſhining and transparent.

To imitate Oriental Chryſolites.

Take two Ounces of Chryſtal prepared, and eight of ordinary *Minium*, and when they are well mixed, put to them twelve Grains of *Crocus Martis* made with Vinegar; bake it more than ordinary, and it will come out very fair.

A Sky and Violet colour'd Paſte.

Take prepar'd Cryſtal two ounces, four ounces of ordinary *Minium*, and add four grains of
fine

fine blue Smalt; well mix 'em together, and when baked, there will be a curious Violet and fair Sky-colour.

Saphires to imitate in PASTE.

Take six ounces of ordinary Minium, and two of Cryстал prepar'd; when well mix'd add five grains of prepar'd Zaffer, and the like of Maganese; mix and bake the PASTE well, and it will produce a curious Saphire colour.

To imitate Garnet in PASTE.

To do this, take six ounces of ordinary Minium, two of prepar'd Cryстал; when these are well mix'd put 16 grains of prepar'd Maganese, and three grains of Zaffer; mix the PASTE well, and when 'tis baked it imitates a fair Garnet.

How to make PASTE imitate Precious Stones.

To do this, take Ceruse or white Lead, grind it as fine as fine Wheat-Flour, put it in a large glass Body, put to it as much good Vinegar as will cover it four Fingers upward, putting it in by degrees till the fury and noise of it is over, so set it on a hot Furnace in Sand, that the eighth part of the Vinegar may evaporate; take it away, let the Body cool, so decant it leisurely; the Vinegar being sufficiently colour'd and impregnated with Salt, put it aside in a glass Vessel, and pour fresh Vinegar on the remaining Lead; let this Vinegar be distil'd, then decant it as before. Do this till the Salt is taken from the Lead, and that will appear when the Vinegar will take no further colour, nor has any taste of sweetness, which generally happens after the sixth time of decanting. The Work being thus far proceeded in, filtre the colour'd Vinegars when mixt together, so evaporate and dry 'em in a glass Body, and at the bottom you'll find the Salt of the Ceruse of a white colour. Set this in a glass Body
in

in Sand, being well luted from the Neck downward, but let the Mouth be open, and the heat of the Furnace contracted for 24 hours; then take out the Salt; if it be yellow, and not red, it must stand 24 hours longer in the heat, and when 'tis of the colour of Cinnabar 'tis enough; then make such a Fire as may not melt it, for if it does, your Labour is lost. Pour distill'd Vinegar on this calcin'd Lead, repeating as before till you have extracted all the Salt from it, and then separate the Terreſtreity in part or in the whole; keep this colour'd Vinegar in glaz'd earthen Pans six days, that so all the imperfection may sink to the bottom; then put the Vinegars into a glass Body and cover it, so after some time standing a white Salt will be at bottom; then strain it, that the grosser part may remain, and cover the Vinegar in a glass Body, and at bottom you will have a white Salt as sweet as Sugar, which you must dry well, which being dissolv'd in common fair Water, let it stand in earthen glaz'd Pans six days; then take away the Sediment, and filtre and evaporate as before, so there will remain a Salt as white as Snow. Do this thrice in the same manner; and being thus prepar'd, 'tis known by the Name of *Saccharum Saturni*, which put into a glass Body in Sand and set in a Furnace at a temperate heat for several days; when calcin'd, it will appear redder by far than Cinnabar, and as subtil as the finest powder, and so 'tis call'd the true *Sulphur of Saturn*, purified from all Terreſtreity.

When you wou'd make *Paste for Saphires, Emeralds, Topaz, Garnet, Chrysolite, Sky*, or any different Colour, take the same method as before, except that instead of ordinary Red-Lead (where that occurs in any of 'em) you must take *Sulphur of Saturn*, and so you may imitate Jewels of exquisite

site Beauty, which far surpasses any yet mention'd, where ordinary Lead is an Ingredient.

How to colour Balls of Glass, or other white Glass within, of curious Colours.

Take any orbicular *Glass* that has a cavity and season it in warm Water, then infuse Iisinglass two days in fair Water, put the Infusion into a white Pan, boil it till it be well mix'd, then take it off, and while 'tis warm put it into a glass Ball, &c. turn the Glass about, that so it may wet and fasten every where within the Glass, so let the moisture drain; then with a hollow Tube or Pipe blow powder'd Red-Lead into it in all parts, that it may run on the moisture, so wave it up and down, after that blue Smalt, then powder of Verdigrise very fine, with Lake well ground, so that they may wave and intermix to make a curious colour; when they stick well take Gesso powder'd, put a good quantity of it into the *Ball*, and so turn it about; then put out the superfluity, and the inside being dry, many curious *Colours* will appear.

C H A P. VI.

To extract Lake, and other curious Colours, from Flowers, Herbs, Seeds, and other things, for Painting, Limning, &c.

To extract Lake from red Roses, wild Poppies, red Violets, Flower-de-Luce, Orange, Borage, Carnation, or other Flowers.

TO do this, take what quantity you please of the Leaves of the Flowers, which being bruis'd on a Leaf of white Paper, tinges it with its colour: You may assure your self of Success, but those Herbs or Flowers that do not so, are not serviceable in this way.

This

This Experiment being made, put ordinary *Aqua Vine* into a Glass Body, the Head as large as may be; and in the top put the Leaves of such Herbs and Flowers from which you would draw a Tincture; then lute the Joints of the Head, and fit a Receiver to it, so give it a temperate Heat, that the more subtil part of the *Aqua Vitæ* ascending to the Head, and falling on the Flowers, may suck out the Tincture, suffering it to do so, so long as it comes colour'd; after that, distil the colour'd *Aqua Vitæ* in a Glass Vessel, which will be overwhite at its coming forth, and is fit for Use in this nature at other times; and then the Tincture remaining at the bottom must not be over-dried, but Care taken that it may be moderately done; and so you may have the Tincture of curious Lake from all Flowers and Herbs fit for Limning, and other Beautiful Works.

To yellow Lake, extracted from Broom-Buds, or other yellow Flowers that have a good Tincture, another way.

Make a Lee of Lime and Barilla tolerably strong, and in it over a gentle Fire boil fresh Broom-flowers, having their full Sap or Substance in them. Order it so, that the Lee may draw to it all the Tincture of the Flowers, which will be known by their turning white, the Lee being then as yellow as Theban Wine; after that, take out the Flowers, and put the Lee into glaz'd Earthen Dishes, set it at a moderate Heat; after that, let it boil by degrees, and put to it so much Roach-Allom as may well dissolve with the Fire. When it is well order'd,
put

put the Ley into Vessels of fair Water, and the Yellowness will settle at the bottom; so when the Settlement is made, decant off the Water, and pour on that which is fresh, and when the Tincture is sunk, order it as the former. Do this till the Salt of the Ley is quite taken out, as also the Taste of the Allom, and then the Tincture of the Colour will be the fairer, and do so till the Water runs out sweet, without any Saltness, with the same Taste as when it was put in; and then at the bottom you will find a curious and beautiful Lake for use, and whilst it is wet spread it upon a piece of white Cloth, and dry it in the Shade upon new baked Bricks, and keep it dry, and as much from the Air as may be; and these two ways at your Discretion, you may extract Colours from any Flowers or Herbs, that have natural Tinctures.

To make a curious Blue, or Sky.

Take three parts of the Flower of Brimstone, two of Quick-Silver, and eight parts of Sal Armoniack; grind these well on a Porphiry-Stone, and with the Quick-silver put them into a long-necked Glass, well luted at the bottom; set it in Sand, and make a gentle Fire till the moisture rises, then let the Glass be stopped at the Mouth, and encrease the Fire as in Sublimation, till the end; and a very illustrious fair Blue will result of your Labour.

To make that Embellishment called the Mixture of the Spheres.

Take purfy'd Tin that is well purged, three Pound, Copper well purified one Pound; melt first the Copper, then the Tin, and being well melted, cast upon them six Ounces of Tartar of Red Wine, only burnt, and of Salt-Petre an Ounce and a half, and two Ounces of Arsnick,

and a quarter of an Ounce of Allom finely powdered; suffer them to evaporate, and then cast them into the form of a Sphere, which Metal may be curiously burnished and Polished, and will shew rare in the mixture for Spheres.

A Lake to be drawn from Cochineal.

Infuse in cold Water a Pound of the Shearings of the finest Woolen Cloth a Day, and so press it well to take away the Oiliness of the Wool; then in this manner Allom the Shearings, *viz.*

Take of Roach-Allom four Ounces, and two of crude Tartar finely powdered, one of Cochineel; put these into a little Pipkin, with about four quarts of Water, and when this begins to boil put in the Flocks; let them boil over a gentle Fire half an Hour, so take them off, and suffer them to cool six Hours, then take them out, and wash them well in fair Water; and when the Water is well soaked in them, by standing two Hours, press it out, and let the Flocks dry. Evaporate the Water, and at the bottom you will find a Sediment of a curious Tincture, as also in the Flocks.

Lake of Brazil and Madder.

In this case, you must work each of them by themselves, but use not so much Allom by an Ounce as you did before, because the Tincture of the Cochineel is deeper than that of Brazil and Madder; wherefore give them their due Proportion, which you will soon find by Practice; and to one pound of Flocks use more Brazil or Madder for Weight. They have not so deep a Tincture as Cochineel has. Work in all Points as in the former, and you will have a very fair Lake.

Lake of Cochineal, another more easy way.

Put a pound of Roch-Allom powder'd into a pottle of *Aqua Vitæ* of the first running, and being well dissolv'd, put in an ounce of Cochineal in powder finely sifted: Do as in the former, and put the Materials in a glass Body with a long Neck, shake it often, that the *Aqua Vitæ* may be well tinctur'd, then let it stand four days, and so pour it into a clean glaz'd earthen Pan; in common Water dissolve 4 ounces of Roch-Allom, put that to the colour'd *Aqua Vitæ* in Hippocrates's Sleeve, or a woollen Bag, and for the rest order it as the other Cochineal Lake, and 'twill answer.

C H A P. VII.

The curious Art of painting Glass in various Figures and Colours in Oil, and annealing the Colours in a Furnace, to make 'em endure all Weathers.

SEeing all have not the Convenience to make Glass of divers colours in a solid Body, 'twill be proper in this Work to give an insight into the superficial colouring or painting it with Colours that shew fair on the outside tho' they penetrate not. And in the first place I shall speak of the Colours proper to be us'd in this Art, and so proceed to Directions for using them.

For a fair Yellow.

Take a fine thin piece of good Silver, dip it in melted Brimstone; when it has lain there a while take it out with Pliers, light it in the Fire, and hold it till it has done burning; then beat it to powder in a brass Mortar, and grind it with Gum Arabick and a little Oaker.

A Gold-colour'd Yellow.

Take a dram of fine Silver, Antimony in powder two drams, put 'em in a Crucible into a very hot Fire about half an hour, then cast it into a brass Mortar, beat it to powder, and put to it six drams of yellow Oaker, old Earth of rusty Iron seven drams; grind 'em very fine for use.

To make a curious blue Colour.

For this purpose take the clearest Leads you can get, beat 'em in a Mortar, get Enamel of the same colour very transparent, grind each by it self, then take two parts of Lead and Enamel, so grind 'em together as you did the Silver.

A fine Carnation Colour.

Take four drams of Jet, Tin, or Litharge of Silver two drams, Gum and Scales of Iron, each one dram, and of red Chalk one ounce; grind these fine, and mix them well together.

A Velvet Black.

Take the Scales of Iron and Jet, each a like quantity, mix them well together for Use.

Another curious Black.

To make this, take Scales of Copper and Iron, each a dram, heat them hot in a Crucible, then take half a dram of Jet, grind them small, and temper them well with Gum-water.

A curious White.

Make this of Chrystal, ground as fine as Meal, and though it be of natural white Glass-colour, it serves curiously to diaper up it, and for other Uses.

A pleasant Green.

Take dried Verdigrise, and grind it well with Turpentine, put it into a glaz'd earthen Pot, and when you use it, warm it so that it may run and spread well, and so be pliable to the Work.

A fair Red Colour.

Pouder Sanguis Draconis, and put to it re-
stify'd Spirit of Wine, and when it has been a
while close cover'd, it will grow very tender ;
wring it out into an earthen glaz'd Pot ; take
the fine liquid part for Use.

Another Carnation, very pleasant.

Take Jet 3 drams, Red Oaker 5 ounces, Tin-
Glass an ounce, Gum 2 drams ; grind these well
together, and you will have a fair Carnation.

The manner and ways of Painting on Glass.

The manner of this is twofold, viz. in Oil
Colours, and such Colours as are afterward to
be anneal'd and burnt on.

To lay Oil Colours.

To lay Oil-colours on Glass, you must first
grind 'em with Gumwater, then temper 'em with
Spanish Turpentine, so lay 'em on according to
Art, in Figures or otherwise, and let 'em dry by
the Fire, and the Work is finish'd.

To anneal or burn Colours on Glass.

To do this, and make the Colours abide well,
you must have a four-square Brick Furnace, a
foot and a half broad, and as much in depth, lay
five or six Iron Bars on the top of it, and raise
the Furnace about eight Inches above the Bars ;
then lay over the Bars a Plate of Iron, and sift on
it slacked Lime, and upon the Bed of Lime lay a
Row of Glasses, then cover them with Lime, and
lay on another Row of Glasses, and so on, till the
Furnace be filled.

Lay likewise with every Bed of Glass a waste
Piece, that you may wipe over with any Colour.

These are termed Watches, and so when you
think the Glass is sufficiently burned, with a pair
of Plyers take out the lowermost and uppermost
Piece or Watch ; lay it on a Board, and when it

is cold, use your Endeavour to scrape off the Colour; and if it hold well on those Rows from whence you took them, they are sufficiently done, and will hold their Colours against all Weathers, and by this Rule try all the rest, and prosper in your Work.

C H A P. VIII.

The curious Art of Gilding divers sorts of Metals with Leaf and Water Gold, laying on Silver, &c.

To lay Gold upon Metals, Wood, &c.

GRind Red Lead very fine, temper it with Linseed Oil, strike it gently and very thin over with a Pencil; let the Gold Leaves be layed on very even, and when well dried, burnish the Piece, and it will cast a curious Lustre, and in this manner Silver is laid on.

To lay Gold on Glass.

Take red Lead and red Chalk, of each a like quantity, grind them well together, and temper them with Linseed Oil, lay it on as the former, and when it is almost dry lay Leaf Gold on it, exactly even, and being full dry, polish it.

To Gild on Stone or Wood.

To do this neatly, take Oil of Ben, and Bole-Armoniack, of each a sufficient quantity, beat and grind them well together, and finely smear the Wood or Stone with it, and being almost dry, lay on Leaf Gold, as before, and being well dried, polish it, and it will stick and shine gloriously.

To Gild, that the Water shall not injure it.

Take calcined Oaker, Pumice Stone, of each a like quantity; add a little Tartar, and beat them with Linseed Oil, then Drop a few Drops of
fine

fine Varnish, strain these, well mixed, through a fine Linen Cloth, and so you may gild with it.

To gild Iron or Steel.

To do this, take an Ounce of Tartar, three Ounces of Vermillion, Bole-Armorick and *Aqua-Vite*, each two Ounces, grind these with Linseed Oil, and put to them half an Ounce of *Lapis Calaminaris*, finely powdered, grind again with a few Drops of Varnish, and so take them off Stone; strain it, that it may be the Thickness of Treacle, and so strike it thin and gently over the Metal, when warm; and when it is near dry, lay on your Silver or Gold, and burnish it.

A Water to gild Knives, Steel, Swords, &c.

Powder Fire Stone, and put it into strong Red Wine Vinegar; let it remain in it 24 Hours, boil it in a Gallon Pot, putting in more Vinegar as the other evaporates. Into this Water dip the Metal, and at first it will be Black, but being dried and well polished, under that Blackness, there will be a curious Gold Colour.

Another curious Way for Water Gilding.

To do this, take of Roch-Alom three pound, Roman Vitriol three Ounces, Orpiment an Ounce, Verdigrease 24 Grains, Sal Gem three Ounces, and when these begin to boil in the Water, put in of Tartar and Bay-Salt, each half an Ounce, let them boll a considerable while, and then take off the Vessel, and the Iron being a little warm, strike it over with this Liquor, and when it is dried before a gentle Fire, burnish it, and you will have a curious Lustre.

To gild Silver or Brass with Gold Water.

Take two Ounces of Quicksilver, put it into the Fire in a Crucible, and when it first smoaks, put into it an Angel of fine Gold; so immediately take it off, and the Gold will be presently dissolved,

solv'd, and if it appear too thin, strain part of the Quicksilver through Fustian, then rub the Quicksilver and Gold on Brass or Silver and it will stick to it; set the Brass or Silver on quick Coals, till it begins to smook; scratch it with a Brush, that the Mercury may separate and evaporate, and leave the Gold of a faint Yellow; then heighten it with Bole, Sal-Armoniack and Verdigrease; grind and temper it with Water.

C H A P. IX.

A Treatise of Metals, in tinging, tincturing, ordering, and altering their Colours; hardening, softening, refining, melting, making Quicksilver malleable, and many other curious Matters.

To make Brass.

TO do this, take three Pounds of Copper, one of *Lapis Calaminaris* in Pouders, melt them together for the space of an Hour, and then put it out, and the Copper will be transmuted into a fair shining Brass.

To make Brass white.

Dilute in *Aqua-fortis* about a Penny Weight of Silver, put it in a Vessel to the Fire, till the Silver turns to Water; to which add as much Pouders of white Tartar as will suck up the Water; then make it into Balls, rub any polished Brass with this, and it will take the Colour of Silver.

To make Copper of a Gold Colour.

Melt the Copper, and put a little Zink to it in Filings, and being incorporated, it will be of a very shining Gold Colour.

To

To make Copper exceeding White.

To make this Metal of a Silver Colour, take Sublimate, Sal-Armoniack, of each a like quantity, boil them in Vinegar, in which quench the Copper when taken red hot out of the Furnace, and it will bear a Lustre like Silver.

To make Gold or Silver soft.

Take Sal-Armoniack, Mercury Sublimate, of each a like quantity, melt the Gold or Silver, and put to it a little of this Pouders, and the Metal will be soft.

To make Quicksilver malleable.

When you have hardened your Quicksilver, break the Metal in small pieces, and boil it in sharp Vinegar a quarter of an Hour; put to it then a little Sal-Armoniack, and digest it ten or twelve Days, so put all together in a luted Crucible, and set it in the Fire, till by degrees it becomes red hot, and cracks little and little, then hang the *Mercury* in a pot, with Brimstone at the bottom; lute it well up, so set it in the Fire, that it may grow hot by degrees, and receive the Fume of the Sulphur. Do this for a Month once a Day and the *Mercury* will run, and endure the Hammer on any occasion. Now to harden Quicksilver for this Work, put Lead separated from its dross into a Vessel, and when it cools thrust in a pointed Stick, which soon take out again, so cast in the *Quicksilver*, and it will congeal; then beat it in a Mortar oft, and it being hard melt it, and put it into fair Water, after which use it.

To tinge Silver of a Gold-colour.

To do this, take fine Gold and Silver, good Brass and Copper, calcined with live Sulphur, of each a like quantity, and it will appear to be Gold of eighteen Carats fine.

To tinge Iron of a Brass Colour.

To do this, melt Iron in a Crucible, casting on it Sulphur Vivæ; then cast it into small Rods and beat it into pieces, for by this means it will be very brittle, so put it in *Aqua-fortis*, dissolve it, and evaporate the *Menstruum*, then with a strong Fire reduce the Powder into a Body again, and it will be of a good Brass Colour scarcely discernable from that made of Copper.

To make Iron a Gold Colour.

Take the powder of Alom of *Melancy*, and Sea-Water, mix them till the powder is well dissolved, then heat a Bar of Iron red hot, and often quench it in this, and it will produce a Gold Tincture.

To make Iron a Silver Colour.

Take Sal-Armoniack in Powder, and mix it with unslacked Lime; put them in cold Water, let them dissolve there, then heat the Iron, and being, when red hot, quenched therein, it will be as white as Silver.

To soften Steel, the better to Engrave on, &c.

Do this with a *Lixivium* of Oak, Ash, and unslacked Lime, by casting the Steel into it, where it must remain about fourteen Days. Now to harden it again, when the Work you design is done upon it, quench it six or seven times in the Blood of a Hog, mixed with Goose-Grease; at each time before you dip it again, dry it at the Fire, and it will be very hard, but not brittle.

To tinge Lead of a Gold Colour.

Take Lead that is well purged from the Dross one Pound, an Ounce of well powdered Sal-Armoniack, half an Ounce of Salt-petre, and two Drams of Sal-Elbrot, put them into a Crucible two Days, in a gentle Fire, and the Lead will be thoroughly tinged.

To make Tin that it will not crack.

Take Honey and Salt, of each a like quantity, when they are mixed, melt your Tin, and throw it when melted about twelve times into it, and so it will purge and leave cracking.

If the Tin thus used be put into a luted Crucible, and calcined twenty four Hours, it will prove like Calx of Gold.

A Pouder to make all Metal soft.

Take a quarter of a pound of Antimony, *Axi-naginum*, Vitel, and Salt, each a like quantity; make these into a Pouder, melt this Pouder with the Metal, and it will effect your Desire.

To make Metal melt with speed.

Put your Metal into a Crucible, with layings of Brimstone, Salt petre, and Saw Duff, and these taking Fire in a good Heat, will soon cause the Metal to run, and save you much Labour.

To put a good Temper on any Edge-Tools.

When you have made your Edge-Tools of hard Metal, heat them red hot in the Fire, and dip them in cold Water, wherein Soap has been dissolved; after that, hold them on hot Coals till the Edges begin to wax yellowish, then drop Tallow on them, and dip them in cold Water, and the temper will be fitted very excellent for use.

To Solder upon Silver, Brass or Iron.

For soft Solder that runs soonest, take Brass four penny Weight, Silver five penny Weight, melt and mix them well together.

To separate Silver from other Metal.

Melt a piece in a Crucible, and cast in some Sulphur, and when the Sulphur is consumed, it will carry away in its Fumes the greater part of the Dross, and that which continues will easily be separated from the Silver, which will remain entire.

To gild Iron, &c. a curious Tinge.

Take three pints of Spring Water, two Ounces of Roch Alom, an Ounce of Roman Vitriol, two Ounces of Verdigrease, four Ounces of Sal-Gem, two ounces of Orpiment; let them boil well and then add some Salt-petre and Tartar; let these boil up again, then take them off, and the Metal being very warm, rub it well with this Liquor, and it will set a curious Burnish on it.

To dissolve Gold upon ones Hand.

To do this, distil the Blood of a Deer newly killed in *Balneo Maria*, soak the Gold upon the Lees three times, and the third time it will dissolve into little Particles.

To make Copper very soft.

Melt burnt Brass with Storax, in a Crucible, quench it with Linseed-Oil, so beat it on an Anvil moderately, and boil it again, quench it as before, and so do five or six times, and when it is sufficiently softened, run it with Copper, and it will make it as pliable as Lead.

To make Iron or Silver a Brass Colour.

Take Flowers of Brass, Vitriol, and Sal-Armoniack, of each a like quantity, beat them into fine powder, and let them seeth about half an Hour in strong Vinegar, then take off the Vessel, putting in Iron or Silver, and covering it, and when it is cold take out the Metal, and it will appear like fine Brass, and fit to be gilded.

To colour and soften Gold.

Dissolve Verdigrease in Vinegar, and strain it through a Felt, then congeal, and when it begins to wax thick, put to it Sal Armoniack, and let it harden a considerable time, so melt the Gold with it, and it will not only heighten the Colour, but render it soft and very pliable.

C H A P. X.

A Miscellany or Mixture of Curiosities; being rare Secrets, known but to few, and highly profitable and pleasant.

To whiten Natural Pearl.

TO do this, take half an ounce of Bean-flour, Lime and Eggs beaten together an ounce, Water of Confound, Alcohol of Wine, distil 'em, and put the discolour'd Pearl into the distill'd Water, so they'l be a curious Silver white.

To make Horn like Tortoise-shell.

Take a dram of the Litharge of Gold, half an ounce of Quicklime, mingle these well together, make 'em into a Paste with White-wine, and of this make layings on Horn that's thin on the sides: Being clear and dry, take it off after five or six hours; add Tripoli and a little Sallad-Oil to it, and when that has lain as long, rub it off with a Linen Cloth, so polish it, and the places where this has lain will be discolour'd like Tortoise.

To make a Walnut Grain on white Wood.

Thinly spread on it 7 or 8 lays of strong Glue one after another, each being first dry'd, and it will become shining; then wet a Brush or Pencil in common Water, and form your Knots or other Strokes in the Glue whilst warm, so strike hard on it with a wooden Brush, and lay another laying of Glue, and polish it.

To cement broken Glass, a curious way.

Take Glair of Eggs mix'd with Quick-lime, burnt Flint (*i. e.* Flint calcin'd to powder) and Eggshells; with these and Gum-Sandarach make a Glue or Cement, and anoint the broken edges of the Glass with it warm, as thin as may be; place the other pieces right and even on it, and

set

set it cool, so let it lie in Water an hour; take off the superfluous Glue, and the Glass will be as firm as ever, and the Cracks not be discern'd, but with great difficulty, by a very clear Light.

To make Sashes for Windows as clear as Glass.

Take Vellom, thin Parchment, or the finest white Paper, as smooth on both sides as may be, and being wet and stretch'd, put it on the Sashes as streight as you can without tearing, then let it dry gently in the shade; take two parts of Nut-Oil, or Linseed-Oil, two parts of fair Water, and a little white Glass beaten to fine powder; boil them in a glass Body in Sand set on a Tile pretty near the Fire till the Water be consum'd; then mix and strain it, and lay it on very thin with a fine Brush, but so that it may soak thro' the Paper; so they will be exceeding transparent.

To soften or dissolve Horn or Tortoise.

Make a Ley of the Ashes of burnt Bean-pods, strong Vinegar, Quicklime and Tartar; put in the Horn in thin pieces, and in 4 or 5 hours the Horn will turn to a Jelly, or be so soft that you may work it into what form you please with little Labour. The like may be done with Tortoise-shell, but it will not Jelly; however, 'twill be so soft that it may in a manner be moulded like Wax, and very plyable to make small Boxes, or Watch-Cases, and other things.

To soften Ivory, a curious way.

Boil a good handful of Sage-leaves in thrice distill'd Vinegar, put in a little Quick-Lime
and

and boil the Ivory in it, and it will grow soft and tough, and not break but with great difficulty, when it is worked in the finest Comb-Teeth, or other fine Works.

To take Spots out of Ivory, and Whiten it a new Way.

To do this, lay the Ivory in quick Lime, and pour first a sprinkling of Vinegar, and then Water, but not too much, that the Heat may not be too great, to make it scale or grow brittle; and when it has lain twenty four Hours, take it out, wash it with White-wine, rub and polish it, and it will be marvellous white. Read *Art's Treasure*.

To melt Amber for divers Uses.

Take Amber that is not brittle, put in pieces in Juice of Citron, or strong Vinegar, so that it may swim about an Inch or two in the Vessel you put it into; and so set it over a gentle Fire, and let it heat and simmer till it boil up; then see when the Amber grows soft or dissolves, and put it to the uses design'd.

To make Artificial Ambergrease.

Take Florence Orris Roots and white Starch, of each an Ounce, Asphaltum, or Bitumen, half an Ounce, Benjamin an Ounce, Sperma Ceti an Ounce, Ben Nuts an Ounce, Musk a Dram, Gum Tragacanth as much as will bind it close together, when well incorporated to make up.

To work these, observe that in the first place you make a Paste of the Benjamin, Starch, and Sperma Ceti; this done, take one part, and make up

up half the Asphaltum; the other part make into a black Paffe, with all the Ingredients; then join and temper them well with your Hand.

To make Light for Lamps, that will not smeak.

To do this, distil a Quart of good Olive-Oil, and make the Wick of Talk, or Stone Alom, like other Wicks; which is to be done by steeping them well in Water, and they will spin out; and to make the Oil rise, make a great many little Holes with a small Awl or Needle in the Wick, and it will give a bright and curious steady Light, without smoaking.

To make a Candle not to be put out by any Wind.

To do this, fill a small pliable Reed, or Wheat-Straw, with natural live Sulphur, wrap it about with fine small Lint or Cotten, cover it about with Wax, and make it in the form of a Candle; and then if the Wind happen to blow it out, the Snuff touching the Sulphur, will immediately light again, to great Admiration.

To hinder any Oil that is to burn, from Smoaking.

To bring this about, distil the Juice of Onions, and put a little of it at the bottom of the Lamp, or whatever you burn it in; and the Oil swimming on the top, the strength of the distilled Liquor underneath penetrating, it will hinder it from smoaking, and make it burn the brighter.

To put a Curious White on Alabaster, and White Marble.

To do this, beat Pumice Stone into fine Powder, and for twelve Hours or thereabouts, infuse

Art's Master-piece.

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use it in Verjuice ; then dip a Sponge in it, and rub the Stone well with it pretty warm, then wash it with a Woollen Cloth, dipped in fair Water, and so dry it with another Woollen Cloth, and polish it, and it will be an admirable shining White.

To make Shining Japan, or China-Ink.

Take an Ounce of Lamp-Black, two Drams of Indico, half a Dram of Peach Black, one Dram of black Endive burnt; beat them into a fine Pouder, and then with a Moiety of Fig-Leaf-Water, and another part of Milk, and a very little Gum-Arabick, and when they are well mixed, make them up for use; but before you use the Lamp-Black in this Work, clarify it in an earthen Pipkin, to take out the Dross.

To make Yellow Amber White.

This is a rare Secret, and profitable to be put into Practice. To do it, take a Pound of Yellow Amber, and put it into a very strong Cucurbit of Earth ; add to it two Pound of Sal Gem, or Bay Salt, pour upon them the like quantity of clear Spring Water, or as much as will serve to dissolve the Salt ; that being done, pour on some River Water, and boil them all together in an Alembick for the space of four Hours, without a Neck, and the Amber will be of a delicate white shining Colour, when polished.

To cast Horn in Moulds like Lead.

Take Ashes of Wine Lees, burned and un-slacked Lime, and make a strong Ley, put into
it

it the Scrapings or thin Shavings of Horn, and let 'em boil till the Horn becomes as Pap or Jelly, then mix with it such Colours as you would have it represent, and cast it into what Mould or Figure you would have it represent; when 'tis cold it will harden like Glue, and be of an entire piece, and retain the Colour very well. And thus you may cast the Figures of Flowers, Beasts, Birds, or any other thing, in Horn.

To make a Stone that shall take Fire and burn of itself, if wet with your Finger.

Take a Load-stone that will draw Iron well to it on the one side, and put it away on the other side; put it into a Leaded Pot, put to it four pound of Pitch, and one pound of Brimstone; lute and well clay your Pot, and set it in a Furnace, giving it a gentle Fire the space of one Day and a Night, augmenting the Fire the second Day, and the third Day more, whilst the Stone is on fire, and when it is well burnt cool it again, and cleanse it; so when at any time you wet it, that part will appear on fire, to the admiration of the beholders.

C H A P. XI.

Instructions how to Cast Figures in Ware, Plaister, PASTE, Metal, &c. Leaves, Flowers, Medals, and other rare Curiosities, worthy of Note.

How to cast the Figures of various sorts of Animals.

WHEN you have the Figure ready to mould, then Oil it, and take off the hollow Mould in Plaister, after this manner, *viz.*

Having well Oiled it, lay it on Potters Earth, and make choice of those parts of it you think most convenient to take off, and there make an Edging or Border of the like Earth; this done, cast your Plaister, well temper'd, not too thick nor too thin; that part being well baked, gently lift it up in as few Pieces as you can; repair the Edges, and make little Notches with a Knife, the Edge being oil'd, and so put them exactly together again; after this manner a Border or Edging of the same Earth, in the place whence you took the part of your Figure; which done, cast your Plaister, as before, and so lift up the Piece to repair it; then putting it into its place, continue thus till all be done, which well dried, dress the outside of the Mould with a flat smooth Piece of Iron; and when well harden'd, mark the Pieces one after another; then let them leisurely dry, and join and tie them together with a small Cord, and so you have a compleat hollow Mould of Plaister, which as the Pieces are more or less difficult, may accordingly be made

made of more or less Pieces, from three to twelve, &c.

How to cast a hollow Figure, &c.

Supple the inside of your Mould of Paste, till no more Oil will be taken in; then with Cotton-Wool dry it, and tie all the pieces together with small Cord; then seek a convenient Mouth or Casting-place, and so melt your Wax, made tough with a little fine Turpentine, and when it is neither too hot nor too cold, run it into the Mould; if your Figure be but little, fill it, and after a small time take out the Stopple of the Mouth, and suddenly turn the Figure upside down, that the remaining Wax may run out; and when you perceive it is sufficiently cold, open it, and you will have a hollow Wax Figure. If you find it too thin, let the next remain longer in the Mould; if too thick, pour out what remains sooner, and these Figures, when repair'd and polish'd, you may paint to any lively Colour.

How to put an inward Mould or Kernel into any Waxen Figure, &c.

If your Figure be of a living Creature, with a moderately hot Knife divide it into two parts lengthways or over-thwart; then take Potters Earth, mix'd with a little fine Charcoal Dust, moistening and beating them with a little Iron Rod, till all is well incorporated, and as soft as Paste, and with this Paste fill the inside of the Waxen Figure; which dry, cover the outside of each Piece, where they are to be join'd, with the like Earth, very thin and moist,
but

but beware it run not over upon the Edges of the Wax, and having join'd it, repair it with a thin piece of Copper or Iron warm upon the Joint; then make a Git or Casting Hole in the most convenient place, and let it be long enough, with Breath Holes. If you conceive any part of the Figure to which the Metal will not easily pass, then rowl up little pieces of Wax, about the thickness of a Goose Quill, or according to the size of the Figure, which with a heated Instrument stick to some part of it, that the end may reach the place suspected, where the Metal will not easily run, and there fasten it; then take little Tags, or Iron about that bigness, about half a Finger long, proportionable to the thickness of the Wax of the innermost Mould, and thrust these quite thro' the Figure, to the purpose that the Kernel, being in all parts supported, it may not touch or join to any part of the outward Mould.

To make the Cases or Facing, &c.

Take Founders Earth, very fine, and steep it in a Vessel of Earth, fill'd with fair Water, and by Inclination pour it into another, that the droffy part may remain behind; then add to it some Bone, mix them well together, and with a large Pencil give a smooth laying of the Earth on the Waxen Figure; dry it, and do so six times, and when it has had the last drying, strengthen it with Potters Clay, well mixed and beaten with Hair, and that being dry, put your Mould over the Fire, on Iron Rods, in form of a Gridiron; but beware the Wax boil not within the Mould, lest it break it; lean it then on one side, that the Wax may all

run clean out at the Casting Mouth ; then heat your Figure over a gentle Fire, till it be well harden'd, and melt the Metal you intend to cast the Figure into a good Heat, and have two Crucibles in the Fire, one empty to pour the Metal into, that the Dross and Scum may not remain in it, and when it is at a proper Heat, set the Mould fast in Sand, pour in the Metal, and let it thoroughly cool ; so by breaking your Mould, you will have a perfect Figure without Seam ; but if the Figure be large, you must bind the Mould with nealed Wire, lest the Weight strain and flaw it.

To cast Medals very lively.

To do this, calcine Speculum or Spaud in a Crucible, then put it into a Vessel of Earth, and pour Water on it ; and when you have well stirr'd it, add as much more Water, and being settled, take it out, and make it into Balls ; then a second time calcine it, and beat it into Powder, asperse some Vinegar on it, and by that means make it into a Paffe ; then a third time calcine it, and when cold, beat it to Powder, and searse it very fine, adding an ounce of Sal-Armoniack dissolv'd in Water, to twelve ounces of Speculum ; keep it then in a Cellar, and with it make your Moulds, or otherways frame your Medals of it, moistening it ; also with *Crocus Martis*, or Saffron of Iron, may be made another Spaud, in which you may Cast the finest Hair imaginable.

*To Cast Laurel-Branches, Flowers, Vine-Leaves,
and the like Curious Things.*

To do this, make a Circle of Earth like a Box, to the bigness of the thing you intend to Cast; and imitate such Branches, Leaves or Flowers, as are of a good Substance; for if too thin, the Metal will not without great difficulty run; and when you have chose what you design, run a Needle with a Thread at the end of the Stalk of the Flower or Leaf, and so thro' the middle of it, fastening the one end of the Thread to the bottom of the Circle, and the other to a Stick that is to support over against it in a perpendicular Line, that your Flower or Leaf touch not the sides of the Circle; but before you fasten either, put a little piece of Wax at the end of the Stalk for a Git-Hole which must touch the bottom where the Thread was fastned. Having done this, cast a Composition of Plaister of Brick and Plume, with Sal-Armoniack Water; and when it is well mixed, very fine and dry, bake it till the Flower be wholly consumed that it encompasses, and has taken the Impression off; and being almost cold, run into it Tin, Silver or other Metal; if Tin, you may put a third part Lead, or if Silver, a little Copper; and you will find the Leaves or Flowers very curiously taken in the Metal; take them out by little and little breaking off the Mould; and after this manne you may Cast all Reptiles or Creeping Things.

To mould off Figures in Pafte.

Take the Crumb of a new-drawn White Loaf, mould it till it becomes close as Wax,
and

and very pliable ; then beat it, and rub it with a Rowling Pin, as fine and far as it will go ; then print it in the Moulds, and when it has taken the suitable Figure you desire, dry it in a Stove, and it will be very hard ; and to preserve this from Vermin, you may mix a little Pouders of Aloes with it.

To mould small Figures of Jasper Colour.

Oilyour Moulds with a fine Pencil, and diversify them with such Colours as you please, with Gum Tragacanth ; if they spread or run, put a little of the Gall of an Ox, for the thicker the harder it will prove ; then mould your PASTE of the Colour of Jasper, or the like ; put it in to fill the Mould, tye it with a Wire, and take it out, repair and varnish it and set it to harden.

Red Marble or Porphyry to counterfeit.

Take *English* Brown, if it seem too reddish put some Umber or Soot ; then take a very smooth Board, a well polish'd Marble, or a large piece of Glass a little oil'd : Then take some *English* Brown, with some Roset or Lake, and grind them with Gum Tragacanth ; then with a large Brush flurt or sprinkle the Glass, according to the Marks and Veins of the Stone. When it is enough spotted, let it dry ; then temper your *English* Brown and Umber with Gum Tragacanth Water into a PASTE ; which being laid on the Spotted Glass or Marble, let dry, and polish it.

F I N I S.

AR T's Treasury ; or, The Mystery of dying Cloth, &c. To prepare Colours ; the Art of Painting in Oil ; Engraving ; to prepare and order Metals ; to make Ink, Powders, Wax, Wafers, Wax-work ; to perfume and make Snuffs, Wathballs, and abundance of other curious matters. sold at the Ring in Little-Britain. Price 1 s.